# MARINE REVIEW.

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## Meeting of the Grand Lodge of Ship Masters.

Specially reported for the Marine Review.

Washington, D. C., Jan. 23.—Members of the Ship Masters' Association have heard ,through Washington dispatches, of the action of the grand lodge with reference to light-houses, gas buoys, Sault river regulations, etc., but the affairs of the organization as regards its beneficial features will probably be of even more interest to them than these congressional matters. The sessions of the grand lodge extended over five days and were held in parlors of the Ebbitt House. Upon assembling it was found that the list of delegates, aside from the grand officers, was made up, according to credentials, as follows: Buffalo, Alex. Clark and F. J. McCabe; Port Huron, W. E. Rice and H. Zealand; Chicago, H. F. Loftus and A. Gallagher; Cleveland, J. A. Holmes and Bernard Nelson; Bay City, C. T. Brown; Milwaukee, H. Leisk and E. Saveland; Detroit, A. J. McKay and C. L. Wilson; Marine City, J. A. Ward and T. E. Walker; Toledo, Henry Root and M. Christy. Of this list all were present except Captains Zealand, McCabe, Loftus and Wilson.

Grand President Geo. W. McCullagh, in his annual report, expressed full satisfaction with the condition of the organization, but in referring, in very friendly terms, to the success of the American Association of Masters and Pilots on the lakes, suggested that it might be well to give some thought to the possibility of combining the best features of the two organizations. This question was not, however, taken up at the meeting. Capt. McCullagh paid a fitting tribute to the memory of members who had died during the year, referring especially to the great loss which the association had sustained in the death of Capt. Wm. S. Mack, whose hearty co-operation had been a great factor in the establishment of the organization.

The report of the secretary, W. A. Collier of Cleveland, included a great mass of detail pertaininng to the funds of the organization, death assessments, etc. It showed a membership of about 525. There had been thirteen deaths during the year and assessments to cover eleven of these had been paid. From the report of the treasurer, Lyman Hunt of Buffalo, it was learned that receipts in the endowment fund from assessments footed up $12,190, while there had been paid on death certificates $11,000, leaving a balance of $1,190. Receipts in the general fund footed up $4,694.22 and the disbursements were $2,780.68, leaving a balance of $1,913.54; or a total balance of $3,103.54.

The death list of the year included Cummings S. Geel, John Donohue, E. M. Peck, John R. Gorman, W. S. Mack, Byron Brown, Lorenzo W. Cook, Alpha Simons, Wm. Cowin, Bernard Wilds, Thomas Harbottle, David Critchell and James Frazer. A committee, consisting of W. E. Rice, J. A. Holmes and J. A. Ward, was appointed to prepare a memorial expresing the sorrow of the organization upon the death of the members. The memorial was of a very fitting kind and it was agreed that a number of copies of it should be printed.

As had been expected, some changes were made in the constitution, but they were not of a radical kind. Hereafter there will be but one delegate from each subordinate lodge, and any member is eligible to election as delegate. Officers of the grand lodge other than president, vice-president, secretary and treasurer, will be selected from among the delegates. Annual meetings will be held in some city where a subordinate lodge is located, and it was therefore agreed that the meeting in January, 1898, will be held in Milwaukee. Another change in the constitution provides for a part of the general fund, which is derived from the publication of a directory, etc., being applied to the endowment fund, thus reducing in part the death assessments. It is provided that should the general fund at any time exceed $1,000, an appropriation of $500 from same shall be applied to the endowment fund. Two thousand copies of the constitution as revised will be printed and distributed among the subordinate lodges. The election resulted in the same executive officers being selected for another year. They are: President, George W. McCullagh of Detroit; vice-president, W. E. Rice of Port Huron; treasurer, Lyman Hunt of Buffalo; secretary, W A. Collier of Cleveland. The appointive officers, whose duties are confined to affairs of the annual meeting are: Chaplain, Joseph A. Holmes; marshall, Bernard Nelson; warden, Alex. J. McKay; sentinel, J. A. Ward; auditing committee, Henry Leisk, M. Christy and C. T. Brown.

The foregoing is a summary of the work of the delegates as regards the management of their organization. They also devoted a great deal of time to interviews with congressmen and heads of government departments regarding matters that concern the general welfare of lake interests. Although the executive committee of the Lake Carriers' Association recommended some minor changes in the Sault river rules, the ship masters were disposed to pass over even these minor changes, leaving the rules entirely as they have been, and their conferences with officers of the revenue cutter service were along that line. They adopted resolutions as follows: Favoring the establishment of a large number of gas buoys at different points on the lakes suggested by the aids to navigation committee of the Lake Carriers' Association; opposing the construction of a bridge over the Niagara river at Grand island, which was also opposed by the Lake Carriers' Association; recommending that a permanent light structure and not a light-ship be established to mark the entrance to the new Maumee bay and river channel, and that a gas buoy be maintained to mark this channel entrance until a permanent structure can be erected; recommending, also, that the light-house-board take action on the request of Milwaukee vessel interests pertaining to a change in characteristic of the main light at that point. The kind of light desired in this latter case is not specified. The board is simply asked to make such change as will overcome the disadvantages now encountered on account of the numerous electric lights of the city, etc.

Complaint has frequently been made on the lakes that men entrusted with the care of the smaller class of sailing vessels and tow barges have little knowledge of the meaning of the common signals of navigation. This matter was taken up. It was understood, of course, that efforts have been made, without avail, to institute among officers of sailing vessels some such government regulations as are applied to steam vessels. The ship masters do not expect that a simple request on their part will bring about a general inspection of sailing vessels and officers of such vessels, but they passed a resolution urging the adoption of regulations that will at least require masters of sailing vessels to go before the steamboat inspectors and pass such examination as may be thought necessary by that service. It was also resolved that all sailing vessels should be required by the government to carry, in a conspicuous place, a copy of the pilot rules.

## Engineer for the New Register.

It would seem that the underwriters who are preparing the new insurance register, which will be known as the Great Lakes Register, are sparing no expense in making this classifiction the best that has ever been gotten up on the lakes. It was said, some time ago, that the quality of machinery would be taken into account in giving ratings to the ships, and now Surveyor General F. D. Herriman of Chicago announces that he has appointed Walter Miller to act as consulting engineer in charge of the work of the register as regards engines, boilers, and other machinery. Mr. Miller's headquarters are Western Reserve building, Cleveland. He is a marine engineer of recognized ability and is specially fitted for this work. Up to a short time ago he was designing and constructing engineer for the Globe Iron Works Co. of Cleveland. Of late he has been conducting a general consulting engineering business.

Officers of the Dry Dock Association of the Lakes for the ensuing year are: President, Alexander McDougall of Duluth; vice-president, James Finlater of Detroit; secretary and treasurer, Hamilton Mills of Buffalo. The association presented Mr. Mills with a handsome diamond pin in recognition of efficient service as secretary and treasurer.

## A Plea for Home Ships.

SUBSIDIES NEEDED TO BUILD UP A MERCHANT MARINE—GREAT HANDICAPS EXPERIENCED BY OWNERS OF AMERICAN VESSELS—PLAN TO EXTEND COMMERCE.

By Alexander Mc Dougal, of Duluth.

The following are some ideas that may help others to look at the conditions of the shipping interests of this country in connection with the world at large, and I hope may be the means of leading more able men to force the American ship upon the seas in great numbers. When a ship is made it is the nearest thing to life that man can create, and it becomes an agent for the country to which it belongs; and, for a large ship, the average ownership is more than ten persons to one ship, so that if this ship is made to trade from its own country to other countries, there is more than ten agents created when the ship is built. The following table of the world's shipping, by Statistician Mulhall, will give some idea of the numerous agents some of the countries must have to hunt up trade for so many ships, the probable average size of the ships included in this table being less than 3,000 tons each:

| Flag. | Tons carrying power. | Ratio. |
|---|---|---|
| British | 27,720,000 | 56.6 |
| Scandinavian | 4,240,000 | 8.8 |
| German | 3,870,000 | 8.0 |
| French | 2,410,000 | 4.9 |
| Spanish | 2,020,000 | 4.2 |
| United States | 1,680,000 | 3.4 |
| Italian | 1,410,000 | 2.8 |
| Russian | 1,280,000 | 2.4 |
| Various | 4,280,000 | 8.9 |
| Total | 48,840,000 | 100.0 |

It will be observed by this table that we have only about 3½ per cent. of the world's tonnage belonging to this great country, and the most of that is employed in our coasting trade, which in no foreign vessel can engage, and that part which is employed in foreign trade is either running at a loss or under some peculiar advantages, such as the few sailing ships that carry cargo from the east coast to the west coast of the United States (protected trade), and then go to foreign ports with grain, lumber, or products of our west coast, so as to get back again to the east coast, generally in an indirect way. And it is in the protected part of the voyage ususally that the only profit is made. In the north Atlantic trade, which is the greatest of all ocean shipping between this country and Europe, we have practically no ships except the few steamers running under the postal subsidy and under indirect advantages furnished by some of the railroads, or by their friends in Philadelphia and New York. If a fairly good sailing ship or a steamship were given to a citizen of the United States, with the understanding that he must run it between this country and foreign ports in regular trade, in competition with foreign ownership and foreign management, I think, under the present conditions, it could not pay operating expenses, insurance, and depreciation, let alone paying any profit.

As an illustration, I would cite the following: Lately, on our Pacific coast, my attention was called to the lumber trade that is carried on between Puget sound ports and South Africa, and other foreign countries, where there were two American steamers of about 4,000 tons capacity each, whose owners were anxious to have them carry some of the foreign product. They could not do so on account of the low rates offered, but in came two English tramp steamers of about 6,000 tons capacity each, and took away cargoes of this lumber. I got the wages paid on these different steamers, and when it is known that the United States steamers, although they may be smaller, cost more than the large foreign steamers, and when the following comparative list of wages paid on each are taken into consideration, the matter is easily explained. The trade belongs to the English tramp steamer, the American ship not being "in it" as far as foreign trade is concerned.

### COMPARATIVE WAGES AND COST OF CONSTRUCTION.

Following is a comparative summary of wages. We will first take up the wages on an American tramp steamer of about 4,000 tons. We have:

| | |
|---|---|
| Captain, per month | $ 200 00 |
| Mate, per month | 90 00 |
| Second mate, per month | 60 00 |
| Eight sailors, $35 per month | 280 00 |
| Chief engineer, per month | 150 00 |
| First assistant, per month | 90 00 |
| Second assistant, per month | 80 00 |
| Third assistant, per month | 70 00 |
| Three oilers, $50 per month | 150 00 |
| Six firemen, $50 per month | 300 00 |
| Six coal passers, $40 per month | 240 00 |

There are in addition to the foregoing, several additional hands, making a crew of thirty-four all told, and if the voyage is a very long one we must have, according to regulations of the government and the Seamens' Union, a still larger crew, including a third mate and other men. Provisions per day per man on these ships foot up about 75 cents.

Now let us take the British tramp steamer of about 6,000 tons and we have in her case the following:

| | |
|---|---|
| Captain, per month | $ 90 00 |
| Mate, per month | 45 00 |
| Second mate, per month | 35 00 |
| Six sailors, $17.50 per month | 105 00 |
| Chief engineer, per month | 75 00 |
| Second engineer, per month | 57 50 |
| Third engineer, per month | 38 00 |
| Six fireman, $17.50 per month | 105 00 |

All hands are not noted in this case either, but the total is but about twenty-six. There are no oilers or coal passers. The cost of provisions per man per day is about 34 cents. On the Atlantic coast the difference is not so great as there is more shipping and more foreign seamen to draw from.

Now let us look at the men who build ships and the wages paid in European ship yards as against wages in the yards of this country. The salaries paid to the office and designing forces, to begin with, are about double the salaries paid in European ship yards. The following is a comparative list of wages paid in British and American ship yards:

| Trade. | Rate of wages paid per week. British. | American. |
|---|---|---|
| Pattern makers | $ 9 00 | $ 18 00 |
| Machinists | 8 50 | 15 00 |
| Riveters | 7 50 | 12 00 |
| Caulkers and chippers | 7 80 | 15 00 |
| Beam and angle smiths | 8 40 | 15 00 |
| Holders on | 4 20 | 9 00 |
| Fitters up | 7 80 | 15 00 |
| Ship carpenters | 9 60 | 18 00 |
| Joiners | 9 00 | 16 50 |
| Painters | 9 00 | 18 00 |
| Ship shed machine men | 7 20 | 15 00 |
| Furnace men | 6 00 | 10 80 |
| Riggers | 7 20 | 11 00 |
| Drillers | 6 40 | 11 00 |
| Sheet iron workers | 8 50 | 15 00 |
| Copper smiths | 8 60 | 18 00 |
| Molders, iron | 9 00 | 14 50 |
| Molders, brass | 9 00 | 15 00 |
| Laborers | 4 20 | 8 50 |

To build a good merchant ship for all the world trade in the United States at the present time will cost about one-half more than in Great Britain. Thus, a steamship that would cost $300,000 in the United States would cost but $200,000 in Great Britain, so that for the life of that ship there would be $15,000 yearly in favor of the British ship, as follows: Insurance, 6½ per cent; interest, 4½ per cent; depreciation 4 per cent. on the $100,000 difference in first cost. Then would come the difference in operating expenses, crew, shore management, insurance, foreign agency and exchange in which we are not well skilled, and which would amount to nearly as much as the difference in first cost. At first thought this looks very discouraging, but a plan suggested later on may help us to overcome part or all of this great difference.

### CAUSES ATTENDING THE DECLINE IN SHIPPING.

Some people are now advocating the passage of the Elkins' bill (senate bill 3,223), which provides for a discriminating duty of 10 per cent. on all goods imported in foreign ships, but I think this measure

will not stand the criticism of the people. It is too ancient, and would cause much trouble at home and retaliation from other countries. Different shipping bills have been introduced in congress in the last ten years, but some or most of them have been loaded down with frills and requirements of classification societies, speed, etc., all of which would afterward usually take care of itself, if the proper assistance was at first given by our government to help us bring out our own skill to the world. I think this can be done and at the same time maintain higher wages than are paid in any other country, both in building and operating ships. More than $200,000,000 is paid to foreigners yearly to do our shipping. If we could only do one-half of this, what a commencement it would be to the greatness which this country will some day reach. I think we have more iron ore and coal than Europe, of a good quality, opened up and developed, right in the heart of our population. We have the skill to manufacture it into the various requirements of home and foreign trade. We must do something to give employment to that multitude of intelligent men who are idle in this country. But first let us see what makes so many of them idle. About fifty years ago we began building railroads. About the same time Great Britain began to build ships of iron. Since our late war we have built railroads so fast that the outlay has been the greatest ever known. But bear in mind an assistance was wanted for this railway industry. Most of the capital came from other countries. Now if you look at a railroad map of the country you can hardly see the states for the railroads, and the people got rich and prosperous from the trimmings incident to building and operating these railroads. New fields and mines were opened up. From our rich lands great crops were raised. Machinery was invented to handle cheaply the proudcts of mines and lands. Transportation was cheapened and a high state of prosperity was with us until about four years ago. We were a live people, having about 250,000 commercial travelers stirring up trade with ourselves, until it required only a few days to introduce a new thing all over the United States. But this trade was only with ourselves, and, for the want of our own ships, we had built a wall around ourselves, and we have overdone the railroad building, so that at present there are more than a million men idle. Many of these men were employed in building railroads, and also in the operation of roads which have had to cut down their large forces.

Thus it has happened that while we have been learning the art of building and operating railroads cheaply, other countries have profited in part by our advancement in this line. They have also followed us in the adoption of all kinds of economical machinery on the farm, in the mine, etc. But all this time England's attention has been directed specially to ships, until to-day an ocean chart of her steamship lines looks like a railroad map of the United States. We have been encouraging railroad construction by subsidies, land grants, etc., and Great Britian has encouraged her shipping by various kinds of assistance. In prosperity our people have cultivated extravagant modes of living, while the situation in European countries is quite different. Can we keep this up? We must leave off extravagance, but I think we can still pay better wages and live better if we prepare to build our own ships and through them deal with the countries of the world.

### A PLAN OF SUBSIDIES.

The ships must be fostered for a period of years by a tax on imports, but this tax must fall on all alike and should be applied to such an article as sugar, for instance. The ships must be first of all an American product in every particular. The government assistance must in the beginning be large enough to encourage the building of this new American ship. Its operation will bring the trade in countries with which we have no business or with which we are dealing in only an indirect way. A few years of assistance will be all that will be required. At the present time the difference between the cost of building, owning and operating an ocean-going ship of the United States and that of some of the European countries is about equal to 1½ cents per ton per 100 miles carried at sea, so that the bounty should be about 2 cents per 100 miles on trips made from the United States to a foreign port, or from a foreign port to the United States. But this bounty, which would run up to immense sums if paid on the free-for-all plan, could be limited in its operation. The sum to be paid in ten years could be fixed at say $50,000,000 and divided so as to allow $3,000,000 for the first year, $4,000, 000 for the second year, $5,000,000 for the third year, $6,000,000 each for the fourth, fifth and sixth years, and $5,000,000 each for the following four years. In the distribution of these sums each year let the collectors of customs at home and the United States consuls abroad keep records from manifests, with full regard as to time, so that the amount of premium appropriated would be paid to the ships first earning it. In this way not all of the ships would be paid a bounty, but it is reasonable to expect that, as in all other lines of business, the shipping would be overdone at times. The smaller amounts are put down for the first years for the reason that the number of ships would be small in the beginning, but I am satisfied that the experience of a few years would bring out the enterprise of our people, and when a paying investment was presented to them it would be found, about the fifth or sixth year, that the bounty would be exhausted before the year was half over with. It should be borne in mind all the time that this plan of assistance is intended to apply only to ships that are entirely American and not to those already benefitted by postal subsidy, with no bounty on more than 10,000 miles in the same voyage going or coming.

Think of this great country whose merchant flag has not passed the Suez canal in many years! Most of the great countries of Europe have been and are subsidizing their shipping. Japan is giving $600,000,000 to aid in the extension of internal and external commerce, and we must keep our weather eye on the Pacific. In the building of our war ships alone, which are now looked upon as a necessity by most of our people, we could save, through experience to be gained in ship building, the full amount above referred to as bounty.

### WIDESPREAD BENEFITS TO ACCRUE.

But the great advantages would be in the diversity of interests that would be affected. Aside from the dircct industry of ship building this plan of bounties would eventually result in the establishment of marine insurance companies and banks to do a direct business with ports of the world that are now reached only indirectly. We would be brought in closer touch with all of the America south of us, and with the Orient, which must develop fast in the near future, and whose trade others will acquire if we are not after it soon. And it must be noted also that a good part of the time our subsidized ships would be engaged in trade between two or more foreign ports in which they would not be earning the bounty. The whole country would be benefited from this scheme. Indirectly the lake region would profit from new markets found for manufactures derived from its mineral deposits, and from new markets opened up for the vast quantities of grain and grain products moved from the great northwest. The Mississippi valley would be benefited by new steamship lines out of New Orleans and other southern ports. The northeastern part of the country would derive special advantages, but there is not, in fact, any part of the United States that would not derive a benefit from our owning many ships at sea. If our government will help the ship in this way , the owner of the ship and his numerous agents will hunt up the market for our manufactured products to help his ship earn the freight and premium; the merchant will hunt up the ship owner and manufacturer, who will employ the miner, mechanic, farmer, and laborer. In short, the army of drummers that has been established by the great railway systems of this country will be found competing with the British drummer in different markets of the world.

The question may be asked : What will become of this ocean shipping of ours at the end of ten years ? If it is then known to be a good thing, a bounty can be continued a few years longer, but there is a fair chance that with this assistance we will have learned also the art of constructing and operating ships cheaply and at a profit. The advantages of building, owning and operating our own ships, and then, through a subsidy such as this, hunting for trade both ways, can not be seen at a glance, as there are so many good features to it in so many ways, directly and indirectly. It should have careful, honest consideration unmixed with the sentiment of foreign ship owners and their agents. I think the time to consider the art of ship building and the cheapest system of operating ships is now at hand, and we may yet be among the foremost in this matter, even if we do pay more than others to our intelligent workmen. So let us take up the question somewhat along these lines and build 300 or 400 modern ships to trade from this counry. We will then have begun a process of establishing thousands of agents to increase our trade with the world at large.

Alexander McDougall.

Duluth, Minn., January, 1897.

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Two of the four spars in the steel steamer Emily P. Weed have been taken out. The change is said to have improved her appearance.

## National Convention of the Marine Engineers.

Specially reported for the Marine Review.

Washington, D. C., Jan. 23.—When the National Association of Marine Engineers met here a year ago, they had a big question on hand. They were dealing with congress and the treasury department in the matter of a law making engineers officers of steam vessels. Through the efforts of the officers of the national association this law was passed. Success in this matter has prompted the engineers to take up other legislative questions, and their deliberations this year had reference mainly to bills before congress, none of which were as important, however, as the one passed by the last congress. But after all the executive officers of the association are entrusted with most of the congressional work, and there was one measure brought up at the present meeting that will, if it is pushed by President Uhler and his associates, cause quite a bitter struggle. This is a bill which proposes that all steam vessels of the United States of 1,000 tons or more shall have one engineer and one helper on watch in the engine room at all times while under way, and that all vessels continuously under steam for more than ten hours shall carry two licensed engineers. If this measure is to be pushed, the full policy of the engineers regarding it will probably not be known until the opening of the next congress. There is no probability of its passage by the present congress, which has little more than a month to serve.

Sessions of the convention were held during five days, Tuesday to Saturday inclusive. All of the national officers were present, the list including Geo. P. Wilson, past president; Geo. Uhler, of Philadelphia, president; John J. Searey of San Francisco, vice-president; Thomas F. Dowd of Chicago, secretary, and John J. A. Williams of New Orleans, treasurer. It may as well be noted here that at one of the late sessions,all of these officers were again re-elected to serve during 1897. W. J. DuBois, chairman of the committee on credentials, was not long in passing upon the admission of delegates during a recess that was taken for that purpose, and then followed the appointment by the chair of the various committees to undertake the work of the convention. Considerable time was given to the reading and discussion of the reports of national officers, which continued into the second day's session. At this second day's session, Secretary Furnseth of the Seamen's Union submitted a communication to the engineers protesting against the action of the senate committee on commerce, which is said to have inserted various clauses of a kind detrimental to the welfare of sailors in bills now pending in the senate. The engineers were asked to use their influence against the adoption of the committee amendments. Announcement was made early of the passage of the law which provides that all vessels of 15 tons or more propelled by naphtha, electricity, etc., and which are engaged in carrying passengers or freight for hire, must be inspected by the steamboat inspectors and officered in accordance with laws governing steam vessels. This bill, together with recommendations from General Dumont regarding it, was ordered printed.

Two other matters in which the engineers seemed very much interested were also brought up early and disposed of before adjournment. One of these necessitated a conference between a committee of the association and officers of the civil service commission, who have of late been exercising supervision over appointments in local boards entrusted with the inspection of steam vessels. The committee made arrangements with the civil service commissioners whereby it is expected that engineers in all parts of the country will hereafter be fully informed as to all examinations for positions in branches of the government service for which they are suited. The other matter had reference to a modification of rules governing the admission of sick and disabled engineers to marine hospitals. The present regulations are based entirely upon recommendations from captains or owners of vessels. The engineers are of the opinion that there is too much red tape and loss of time in the present practice, which should be simplified. Surgeon General Wyman of the marine hospital service gave a very cordial reception to the committee that called upon him, and promised that their suggestions would receive consideration, but asked that they be put in writing. The association also recommended the extension of the steamboat inspection laws to Alaska, where, it is said, more than 100 boats are now in the merchant service, manned by unlicensed persons. In their efforts in this direction the engineers expect to have the assistance of the supervising inspectors of steam vessels.

Among resolutions introduced and referred to committees was one by Mr. Sturtevant providing for assistance to the smaller associations in order that they may be enabled to send delegates to the national convention; another calling for arrangements with some mechanical paper to act as official organ for the M. E. B. A. under some plan that would prove beneficial from a financial standpoint to the association; another inserting in the regular order of business a provision for remarks by the president and vice-president; and still another providing that some plan be devised to assist district deputies so that they make frequent visits throughout their districts. It was decided by vote that all members of the M. E. B. A. must hereafter attach themselves to the subordinate association within whose jurisdiction they are residing and employed, when such residence shall have existed one year. It was also decided that in future an applicant for a license as engineer must furnish to the association which he desires to join a certificate from some member of the M. E. B. A., setting forth that the applicant has had the necessary experience to entitle him to consideration. The national president will hereafter spend thirty days of the year among gulf associations, and the good-standing button suggested by Secretary Dowd will be the official button of the organization. The constitution of the national organization, with all changes to date, will be printed shortly, and in future a page in the journal of proceedings will be set aside for suitable reference to the memory of any representatives in the national organization who may die during the year. The per capita tax will be $1.25 as in the past. The advisory board for the coming year will consist of Representatives Sterritt, Brown and Brooks.

Although senate bill 3,223 (Elkin's discriminating measure), which provides that a duty of 10 per cent. shall be assessed upon all goods imported in ships other than American ships, has met with approval from only a small part of the merchant shipping interests of the country, and has no chance of passage in the present congress. The engineers adopted resolutions in favor of it and agreed to assist Senator Elkins in his work. They also made themselves heard in a most forcible manner on the question of an appropriation for the Detroit river postal service. They adopted a resolution declaring in most emphatic terms that the postal service in the Detroit river is too important "to be choked off by any one man or any set of men." This opposition was prompted specially by the fact that J. W. Westcott was in the city endeavoring to prevent the passage of an appropriation for the service. A committee, consisting of F. A. Jones, Edward R. Blanchard and M. B. Sturtevant, was appointed to take this matter up with the proper committees of congress. This committee was joined later by President Uhler and Secretary Dowd, as well as J. H. Galwey, supervising inspector of steam vessels from Detroit. They called on the post office committee of the house and had a long and highly satisfactory conference with Chairman Loud, who exhibited great interest in the project and asked many questions regarding it. After its advantages had been fully set forth he pledged his hearty support to the plan to secure an appropriation for a first-class steam vessel to carry the mails to and from passing vessels with as little interruption as possible to their speed. The members of the committee exhibited to Mr. Loud numerous telegrams and letters received by them since their arrival in Washington, all of which urged them to do their utmost to secure the permanency of the marine postal service. They were, of course, thoroughly interested in their support of the service, which is to them, alike to the thousands of other employes aboard vessels, of more importance than it is to the owners, as they can not afford to pay for private delivery, and their mail was regarded as of practically no account before the government took charge of it.

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In support of the claim that it will be necessary to improve the firemen class of help on ships adopting water tube boilers, it may be noted that for the British cruisers Powerful and Terrible, which are fitted with Belleville boilers, the stokers had all gone through a course of training on board the Sharpshooter, so as to gain experience in the new class of boiler. The stoking of the fires was regulated by a clock, which was exhibited in each boiler room, so that no two fire doors of any single boiler were allowed to be opened at one time. Every four minutes one furnace or the other was stoked, so that each fire remained undisturbed for eight minutes.

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Gen. Wm. P. Craighill, chief of army engineers, will be retired, Monday, on his own application.

## Not at Port Arthur.

Editor Marine Review:—My attention has been drawn to an article in your issue of Jan. 21, entitled "The Term Close of Navigation," in which occurs the following sentence: "No doubt the vessel owners who are several thousand dollars out of pocket, on account of their boats being frozen in at Port Arthur this winter, will agree with Judge Swan, especially as it is known that some of the vessels now wintering at the head of the lakes passed through the Sault canal, bound up, as early as Nov. 26 and 27." For the benefit of yourself and your readers, I beg to inform you that there are no boats frozen in at Port Arthur, other than those which always winter here. These consist of one lumber company's tug, three fishing tugs and a steam yacht. There are, however, frozen in at Fort William on the Kaministiquia river, the big American steamers Oglebay, Manola, Gratwick (wooden) and Sauber. A Canadian steamer, the Algonquin, was at Fort William in company with the first three; she left there Dec. 2, fearing trouble; had her cargo transferred to Port Arthur and loaded at King's elevator there; at 1 a. m., Dec. 5, cleared for the "Soo"; was in the ice jam on Hay lake, but got through that and through Lake Huron, Lake St. Clair and the Detroit river, as well as Lake Erie, the Welland canal and Lake Ontario. She proceeded to Prescott, discharged her cargo of wheat there and returned to Toronto, where she has been in winter quarters since about Dec. 15. Comment should be unnecessary. I might add that on Jan. 15 Thunder bay was open to King's elevator. George T. Marks, Mayor.

Port Arthur, Canada, Jan. 25, 1897.

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After a very long delay, Daniel E. Lynn, one of the Lynn brothers of Port Huron, is to be accorded an honor seldom conferred upon anyone in this country. He is to be given a medal for bravery in an effort to save life, the case having been regarded of sufficient importance to warrant the passage of a special act of congress. The bill passed the senate a few days ago, and Senator McMillan, who has the matter in charge, is quite certain of securing the approval of the president before the end of the present session of congress. The medal is to commemorate the bravery of Mr. Lynn and three companions in their vain attempt to relieve the crew of the wrecked schooner Shupe on the beach near Port Huron. Lynn was the only one of the quartette who survived the attempt at rescue.

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There are certainly few men of wealth in this country whose money interests are kept as well in hand as those of Capt. James Davidson of West Bay City. What he has is his own, without corporation connections, and if figures were at hand it would probably be found that he is at all times possessed of as much ready money as almost anybody on the lakes. A little figuring regarding his fleet for next season shows that he will have eighteen wooden vessels, five of which are immense wooden steamers, and at a very low estimate (lower than the prices which he asks for them) the combined value of this fleet is full $1,250,000. His interests at Buffalo represent in one case the control of a big elevator.

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Although no official announcement has been made in this country of the American line management preparing for the construction of new steamers, it is reported from Glasgow that the company is about to build two 12,000-ton crack liners, one in the United States and the other probably on the Clyde. The specifications are said to be: Length 500 feet, breadth 55 feet, speed 20 knots; machinery, two sets of triple expansion engines of 8,000 nominal horse power; steam to be supplied by four double-ended cylindrical marine boilers, each 16 feet by 12½ feet, and having six furnaces each of 500 square feet grate surface and 17,000 square feet heating surface.

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A noteworthy event in the annals of technical education in the United States will be the forthcoming celebration, on Feb. 18 and 19, of the twenty-fifth anniversary of the Stevens Institute of Technology, which was founded by the late Edwin A. Stevens of Hoboken, N. J. The festivities will include a banquet at the Hotel Waldorf, New York, to which representative engineers and technical educators throughout the country will be invited.

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There is nothing positive regarding a reduction in the charge of $1.50 per thousand bushels made for the use of steam shovels in the unloading of grain at Buffalo, but it is hoped that the committee appointed at the annual meeting of the Lake Carriers' Association to look after this matter will secure a reduction of 25 cents per thousand.

## Detroit River Postal Service.

Now that the merits of the Detroit river postal service have been fully presented to the house committee on postoffices, it is quite evident that Congressman Corliss of Detroit, who has been prompted by political influences in his district, has made a mistake in opposing the wishes of practically the entire lake marine. The Detroit newspapers have printed columns about the opposition to an appropriation for improvement in the service. There has never been any opposition to improving the service, excepting that shown by Mr. Corliss in behalf of J. W. Westcott, whose private business is interfered with by the government work. The influence of Mr. Corliss in this matter was at an end when he appeared before the house committee on post offices a few days ago and presented a very weak argument. The Detroit congressman probably realized this when he was told by Mr. Loud, chairman of the committee, that the committee would not undertake to instruct the department as to how any appropriation for the Detroit river service might be spent. It was evident from the general tone of Mr. Loud's answer that the committee, whose recommendations to congress will undoubtedly be endorsed, is heartily in favor of all that the post-office department has done regarding the delivery of mail to vessels passing Detroit and will not interfere with any plans for improvement in the service that may be under way. The great interest that has attended this subject is indicated by the following communication, which comes all the way from Massachusetts:

Editor Marine Review:—If the statements in your last issue, credited to Congressman Corliss of Detroit, are true, that gentleman shows, by his indecision as to whether he will support improvement in the Detroit river postal service, a dense ignorance of the needs of his district. His position is about on a par with the statement of a writer in one of the eastern magazines, who in a recent issue submitted an illustration entitled "The Steamship Northwest in the Duluth Dry Dock at West Superior." But there is some excuse for the latter, who is undoubtedly one of the class of self-satisfied New Yorkers who have never been off Manhattan island in their lives, and who imagine that the sun rises and sets on the island and no where else. They have no idea of the magnificent ports of St. Louis bay, where over a hundred million bushels of grain and millions of barrels of flour are shipped every year, and which are 1,500 miles to the northwest of New York. Your congressman, however, lives in the city where this postoffice is located and should know that it is the greatest convenience ever provided for the thousands of men employed on lake vessels. He should know also that by means of this service vessel owners are enabled, at the regular postage rates, to communicate with absolute certainty with their vessels at this point, and by adding the price of a special delivery stamp can have telegrams delivered, whereas heretofore owners have been taxed to the extent of $10 to $25 per boat per annum for a limited service by the man who is now alone in opposition to the great work of the postoffice department. Your member of congress in Detroit is evidently under the wing of this opposition, but it is strange that he should be kept so much in the dark when it is well known, as far east as the Atlantic coast, that the river post office handled last season, under adverse circumstances, some 175,000 pieces of mail, of which more than three-quarters were letters.

Springfield, Mass., Jan. 25, 1897. H. E. Schmuck.

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There is no truth in the report that F. W. Wheeler & Co. have secured a contract from the Flint & Pere Marquette company for another car ferry similar to the Pere Marquete. The F. & P. M. management is desirous of having another vessel, but this first one must be given a trial of a few months before anything further can be decided upon. The Pere Marquette has been undergoing finishing touches since she was taken to Lake Michigan and will not go into commission until Monday next. She goes to Milwaukee tonight (Thursday) for inspection.

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Although the chairmanship of important committees in the Lake Carriers' Association has not as yet been definitely decided upon, it is probable that James Corrigan will preside over the executive committee, Geo. P. McKay over the committee on aids to navigation, and E. T. Evans, the legislative committee. Mr. Caldwell was chairman of the legislative committee, but his retirement from lake business will probably result in the selection of Mr. Evans to succeed him.

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Capt. Charles Wallace who was with the O. S. Richardson Fuel Co. of Chicago last season, is now with the Independent company.

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 409 Perry-Payne building, Cleveland, Ohio, by John M. Mulrooney and F. M. Barton.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,031.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

| | Number. | Gross Tonnage. |
|---|---|---|
| Steam vessels | 1,792 | 924,630.51 |
| Sailing vessels and barges | 1,125 | 354,327.60 |
| Canal boats | 416 | 45,109.47 |
| Total | 3,333 | 1,324,067.58 |

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

| | | |
|---|---|---|
| Year ending June 30. 1891 | 204 | 111,856 45 |
| " " " 1892 | 169 | 45,968.98 |
| " " " 1893 | 175 | 99,271.24 |
| " " " 1894 | 106 | 41,984.61 |
| " " " 1895 | 93 | 36,352.70 |
| " " " 1896 | 117 | 108,782.38 |
| Total | 864 | 444,216.36 |

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

| | St. Mary's Falls Canal. | | | Suez Canal. | | |
|---|---|---|---|---|---|---|
| | 1895* | 1894 | 1893 | 1895 | 1894 | 1893 |
| No. vessel passages | 17,956 | 14,491 | 11,008 | 3,434 | 3,352 | 3,341 |
| Tonnage, net registered | 16,806,781 | 13,110,366 | 9,849,754 | 8,448,383 | 8,039,175 | 7,659,068 |
| Days of navigation | 231 | 234 | 219 | 365 | 365 | 365 |

* 1895 figures include traffic of Canadian canal at Sault Ste. Marie, which was about ¼ per cent. of the whole, but largely in American vessels.

Considerable interest is attached to the announcement that the Wisconsin Central, Flint & Pere Marquette, Columbus, Hocking Valley & Toledo and Norfolk & Western railways, four lines forming a direct route from the flour districts of Minneapolis, St. Paul and Duluth to Norfolk, Va., on the Atlantic seaboard, have entered into a compact to secure a large amount of the export business in flour that originates in the northwest. The announcement would be even more important if it were not for the fact that the Wisconsin Central and Norfolk & Western roads are in the hands of receivers, and a third company in the combination, the Hcoking Valley, is known to be one of the Ohio soft coal roads that has suffered a big falling off in revenues of late on account of the depression in the soft coal business. But the financial condition of these roads may not interfere with the conclusion of this traffic arrangement, which, from a lake shipping point of view, again directs attention to the drift of flour and grain export business to southern Atlantic and gulf ports. For several years past the Big Four and Chesapeake & Ohio railways have been delivering to a line of vessels at Newport News, controlled by the C. & O. C., a very large quantity of flour that is obtained from the Minneapolis and Duluth districts through steamboat lines crossing Lake Michigan and which are operated the year round. Now this new combination comes in for more of the business, to be delivered to steamboat lines at Norfolk, Va., which is in the immediate vicinity of Newport News. With the Flint & Pere Marquette company in the deal the across-the-lake service on Lake Michigan will certainly be of a first-class kind, as that company has just placed in commission one of the finest steel car ferries ever built in this country, and a contract has been let for a second ferry with the builders of the first one, F. W. Wheeler & Co. of West Bay City, Mich. Of course, this flour business, as far as the Lake Michigan service is concerned, is still retained in part on the lakes, but it would seem that this diversion of trade to southern ports ought to cause the managers of lake and rail lines operating through Buffalo to awake to a sense of losses which they are meeting with from routes that must involve a much longer haul of freight. It may be noted, however, that with the Lake Michigan car ferries it is possible to move this flour without transfer from cars over the entire route from Minneapolis, St. Paul and Duluth to the place of export, Norfolk in Virginia.

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Although it was claimed by the dredging contractors of the lakes, who met in Indianapolis a few weeks ago, that the association which they are trying to form would not attempt to fix prices of dredging, it would seem from the statements of some of the dredge owners that such is really the intention of the proposed organization. Another meeting is to be held in Chicago, Feb. 2, and the success or failure of the attempt to form an association will depend upon the merit of plans to be submitted at that time. Mr. W. S. Carkin, senior member of the firm of Carkin, Stickney & Cram, leading dredging contractors of Detroit, makes no secret of the fact that these contractors have sized up the large amount of work that must be done in the harbors all over the lakes, to conform to deeper connecting channels, and have concluded to try, if it is possible to agree among themselves, the plan of combining their interests along certain lines. He says, as an excuse for the effort to make up a combination, that only in a few cases has any money been made of late years on dredging contracts. He says, also, that anything that may be done will be along conservative lines. It is more than probable that if any attempt is made to enforce high prices on government work, the engineers will throw out the bids, and it is to be hoped, therefore, that good judgment will characterize the plans of the contractors, as delay with the improvements would prove disadvantageous to all interests. In referring to the large amount of work that is to be done in numerous harbors around the lakes, in order to conform to the big government improvements in the rivers, Mr. Carkin directs especial attention to the progress of dredging at Ashtabula, which will be the first port to fit itself for the deeper draft that is expected soon in all parts of the lakes.

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Civil service rules are gradually being applied to numerous branches of the government service connected with shipping. The greater part of the steamboat inspection service and the large number of civilians employed under the direction of the army engineer corps on government works in various parts of the country were recently brought under the direction of the civil service commission, and now everything is in readiness to include also the surfmen of the life saving service. A circular just issued by the commission covers all details in the new regulations. Applications for examination will in future be filed with keepers of stations and lists of eligibles will be made up twice a year, in June and December. No appointments will be made except from these lists. No person shall be examined who has not had at least three years' experience as a surfman, sailor, or boatman, unless it should happen that there are no applicants possessing this qualification. An applicant must be a citizen of the United States; not under eighteen nor over forty-five years of age; not less than 5 feet 6 inches in height; not less than 132, nor more than 190 pounds in weight. There are numerous other requirements but those just noted are the most important.

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"We think for the next three months you had better make it a practice to send us three copies of the Marine Review each week. There are a great many articles appearing in your paper from time to time which we desire to bring to the notice of our various underwriters, and consequently, we desire a spare copy or two of your publication." The foregoing is an extract from a letter received a few days ago from Johnson & Higgins, insurance brokers, who place a very large part of the insurance on steel vessels of the lakes. A standing order for three copies of any publication to go to a single house would certainly seem to indicate appreciation of its contents.

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Lake vessel owners and their employes have no special interest in the recent decision of the United States supreme court regarding a party of sailors who were imprisoned on the Pacific coast for desertion. The court decided that that part of the shipping laws which authorizes the arrest of sailors who refuse to observe the terms of their contracts to serve on board vessels, is constitutional and within the jurisdiction of the state courts to enforce. The laws referred to are those governing shipping commissioners and apply to the coast but not to the lakes.

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The old Republic Iron Co. still keeps up its reputation as a dividend payer. A dividend of 50 cents a share will be paid Jan. 31. Although the output of this company has been greatly reduced of late, three dividends of $1 per share each were paid during the last fiscal year. No change was made in either officers or directors at the annual meeting, held recently.

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Army and navy charts of the lakes are kept in stock by the Marine Review, Perry-Payne building.

## Answering the Dry Dock Company's Inquiry.

Editor Marine Review:—I notice in your issue of Jan. 21 a communication from the Dry Dock Engine Works of Detroit, headed "Where is the Fuel Economy?" With your permission I will proceed to answer this question, because it is one of great import to a large and growing interest in this country, both on land and water. Your correspondent appears to think that the fuel economy shown in the American liner St. Paul is entirely due to the Howden hot draft, but if this be so, how are we to account for the removal of the Howden draft from two of the American line steamers, viz., the Berlin and the Paris, and the substitution of the Ellis & Eaves suction draft, with the greatest satisfaction in the case of the Berlin. If I am correctly informed, the Paris, with the Howden draft, was not doing as well as her sister ship, the New York, without it, hence the removal.

But to show conclusively that your correspondent is mistaken in stating that there is no more virtue in Serve ribbed tubes than in plain tubes with retarders, I will cite a case directly to the point, which I trust may interest your readers. In the power plant of the American line steamers at the foot of Fulton street, North river, New York city, are two boilers of the Scotch marine type, precisely alike in all respects, except that one is fitted with 3¼-inch O. D. plain tubes, with retarders, and the other with 3¼-inch O. D. Serve ribbed tubes, with retarders, both being used in combination with the Ellis & Eaves suction draft. I annex herewith the result of three trials of the boilers separately, showing an increased evaporation in favor of the boiler fitted with Serve ribbed tubes of 21 per cent., and with less fuel than burned in the boiler with plain tubes.

POUNDS OF WATER EVAPORATED PER POUND OF COAL.

| | Trial Sept. 28, 1894 Plain tubes. | Trial Oct 5, 1894 Plain tubes. | Trial Sept. 29, 1894 Serve tubes. |
|---|---|---|---|
| Per pound of coal | 6,600 | 6,693 | 8,225 |
| Combustible | 7,455 | 7,674 | 9,290 |
| Coal from and at 212° | 7,228 | 7,274 | 8,939 |
| Combustible | 8,165 | 8,332 | 10,097 |

It is possible that the Dry Dock Engine Works is correct in stating that with the Howden draft there is no appreciable difference in evaporation between Serve tubes and plain tubes with retarders, but if this is the case, it is manifestly due to serious defects in the Howden system, which fails to make the difference apparent, because with the more advanced and logical system of Ellis & Eaves, which exhausts the gases by suction and developes to the fullest extent all the good qualities of a boiler, (without overheating the tube ends and causing the tubes to leak), the advantage in favor of the Serve tube has been proved to exceed one-fifth and with less fuel. I shall be happy to mail any of your readers who desire it, and will so advise me, all the details of the trials on the American line wharf to which I have referred and which I have had printed. C. W. Whitney.

No. 66 Broadway, New York, Jan. 25, 1897.

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Few people connected with lake shipping, even the vessel owners themselves, are fully acquainted with the very large business that is done in paint each year. The two largest paint concerns in this country are located in Detroit and Cleveland, and their sales to vessel owners is one of the most important items in their business. The Detroit White Lead Works is about to establish a branch in Cleveland, which will be in charge of Capt. A. E. White, who was recently made manager of the marine department of the concern. Capt. White is well known among vessel owners and marine men generally. He was in command of the Cleveland-Cliffs company's steamer Pioneer last season, and has also commanded several boats of the Wilson line. The Detroit works has branches also in Chicago and Buffalo, which will enable the marine department to give special attention to the vessel trade in all parts of the lakes. Capt. White says that competition in this business is so close that it has become necessary for the manufacturers to sell to consumers direct, and this is the main cause for the establishment of the department entrusted to him.

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Officers of the Marine Engineers Beneficial Association No. 44 of Manistee, elected to serve during 1897, are: President Wm. R. Patterson; vice-president, H. F. Otto; recording secretary, R. Marsh; financial secretary, F. R. Winkel; corresponding secretary, Chris. Dahl; conductor, Frank McMillan; door-keeper, Adolph Winkel; chapliain, Henry Hall.

## Western River Steamboats.

In comparing the advances that have been made in the ocean and lake marine with those on the western rivers, the latter have generally been made to appear in an unfavorable light. The fact, however, has been overlooked in most cases that the conditions of service are radically different, and these differences necessitate, in fact compel, corresponding differences in the character of the steamers. The boilers and engines of the magnificent ocean liners would be as much out of place and would fare as disastrously on the western river steamboat as would the machinery of the latter if transferred to ocean service. Machinery essentially similar to that employed on the great lakes has been tried many times on the western rivers. Large sums of money have been spent on experiments, and the result has always been a failure. Even the vertical engine has been abandoned. Barring unimportant details, the machinery of the western river steamer is pre-eminently "the right thing in the right place." It is not uncommon for the boats to run aground, and it is still more common for the cargo on board to be badly distributed. Either of these conditions will cause an immediate distortion of the entire steamer, and the machinery is thrown out of line. The peculiar type of engines employed stands this severe service without injury or derangement.

The accepted type of machinery is so simple and reliable that it can be handled satisfactorily by a small number of men, and these need not necessarily be highly skilled, nor of long experience. This is of some importance in view of the fact that the months of idleness render it difficult to retain the best men, and that it is always necessary to keep the salary account down. Experiment has demonstrated that the saving in fuel due to improved machinery does not, as a rule, compensate for the drawbacks accompanying its use, such as increased weight, space occupied, greater first cost, and less reliability.—Cassier's Magazine.

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## Departure in Pumping Machinery.

The Cleveland Ship Building Co. has decided to use compound independent air pumps and compound boiler feed pumps, to be built by Henry R. Worthington, in the new steamer Empire City, which they are now building for A. B. Wolvin of Duluth, and which will have quadruple expansion engines and Babcock & Wilcox water tube boilers. In compounding these auxiliaries General Manager Wallace shows how carefully he is looking after the matter of coal consumption on this new steamer, which will represent the highest practice in marine engineering. The Worthington company claims 30 to 40 per cent. economy with these pumps, and it will be interesting, therefore, to compare results on this steamer with those of other modern steamers that are not similarly equipped.

A contract for water works pumping engines just closed by the Worthington company with the city of Chicago involves the biggest single order of this kind ever placed in this country. The engines are for the new Chicago water works and there are six of them, costing $435,000 and having a capacity of 20,000,000 gallons each. This new capacity in Chicago is about double the entire pumping capacity of Cleveland.

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## Coming Into Universal Use.

The Shaw and Spiegle patent steam towing machine, manufactured by the American Ship Windlass Co., of Providence, R. I., bids fair to come into use everywhere in towing just as that company's steam windlasses and steam capstans are universally used on steamships. In addition to the twenty-six steam towing machines already in operation, the Providence company has orders now for eight more of these machines, which they are building. The latest order, received last week, was for the steamers Italia and Caledonia, owned by James Corrigan. As the Aurora, another Corrigan steamer, had the first steam towing machine built by the American Ship Windlass Co., Mr. James Corrigan has had an opportunity to see what advantages this machine has in towing. Mr. Corrigan has also ordered a steam towing machine for the steel barge which he is having built by the Globe Iron Works Co., making three towing machines ordered by him the present season.

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**A Very Desirable**

train to take when going to New York is Pennsylvania No. 6, leaving Union station 1:40 p. m. daily and from Euclid avenue 1:50 reaching New York 7:40 next morning. Pullman sleeper through without change. Supper served in dining car. Apl 15

## Around the Lakes.

C. H. Weeks, vessel and insurance agent of Duluth, was among visitors in Cleveland during the past week.

E. W. Heath of Benton Harbor will put a Roberts boiler into a wooden steam yacht which he is building for H. B. Larson of Manistee.

Col. Jared Smith, United States engineer at Cleveland, has been confined to his home on account of illness for some time past, but is now improving.

Wm. Empfield, who has had charge of lake shipments of coal from Fairport for some time past, is a candidate for collector of customs at that point. He is known to be in every way fitted for the position and will have the support of the vessel interests.

Captains Frank Stenton, Richard Neville, Clint Ennis, A. J. Greenlee, John Ward and James Stone are members of the Cleveland lodge, Ship Masters' Association, who will have charge of the annual ball, which will take place on the evening of Feb. 17.

Gibson L. Douglass, who has been in charge of the lighterage department of the New York Central Railway in New York city, has been appointed to succeed Mr. S. D. Caldwell as general manager of the Western Transit Co., and has taken charge at Buffalo.

John A. Currier, chief engineer of J. M. Forbes' yacht Wild Duck, which was the first vessel in this country to be fitted with Belleville boilers, is engaged with G. L. H. Arnold making repairs on boilers and machinery of the passenger steamers North West and North Land at Duluth.

On account of competition from New York brokers representing a syndicate of foreign and American insurance companies, the Chicago representatives of companies regularly engaged in cargo business on the lakes have made a rate on grain stored in vessels at Chicago of 65 cents per $100, which is a flat reduction of 35 cents.

The Sheriffs Mfg Co. of Milwaukee, has orders for wheels as follows: One 8 feet 10 inches in diameter for the steamer T. S. Christie at Manitowoc; one 7 feet 4 inches in diameter for the tug Whitewater at New Orleans; one 5 feet 2 inches in diameter for the tug Carrie B. at New Orleans; one 54 inches in diameter for S. S. Brown of Pittsburg, Pa.

A statement of the affairs of B. B. Inman of Duluth, who failed recently, shows assets of $99,730.22, against liabilities amounting to $171,459.45. The assets consist almost entirely of tugs and various outfits pertaining to them, but these are in nearly all cases encumbered by mortgages, so that the creditors, aside from those secured by mortgages, will get very little in the settlement.

The Review acknowledges the receipt of an invitation from members of M. E. B. A. No. 4 of Chicago to attend their twenty-second anniversary reception which will be held at the Masonic temple, Feb. 10. The occasion will undoubtedly be one of enjoyment. Geo. A. Grubb is chairman of the committee on arrangements, and Thomas F. Dowd, the efficient national secretary of the association, is also on the committee.

Hughes Bros. & Bangs of Syracuse, N. Y., who recently secured the big Buffalo breakwater contract, are said to be preparing for the construction of a big steel dredge that will be the largest craft of its kind ever built on the lakes. It is expected that they will employ about 1,500 men on this contract during the coming season. The work will be completed in about four years if regular appropriations are secured. In addition to this Buffalo job the Syracuse firm has the Delaware breakwater at the mouth of the Delaware bay, the contract price of which is about $5,000,000; the Point Judith breakwater, at New Haven, Conn., and two sections of work in deepening the Erie canal. The Buffalo and Delaware breakwater jobs are the largest ever let in a single bidding under river and harbor appropriations.

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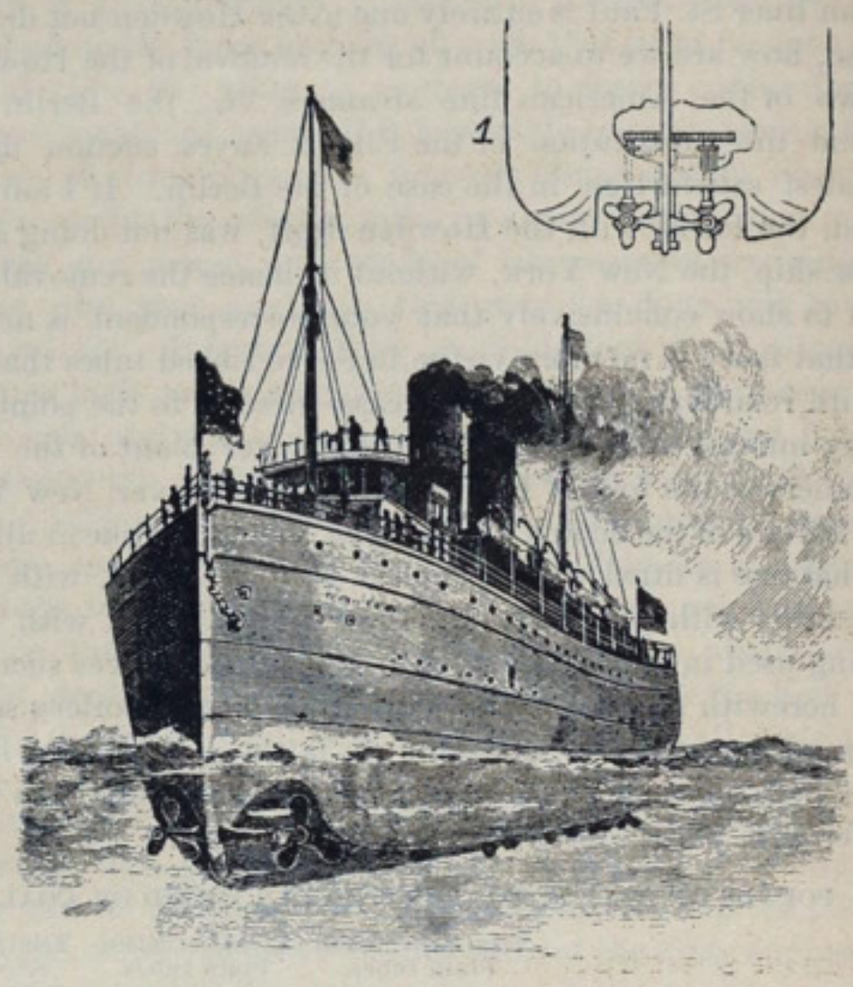
There is evidently no hope of any action on the Nicaragua canal bill in the present session of congress, although the matter may come up as a government affair entirely under the incoming administration. Senator Sherman, whose remarks are significant on account of the position which he will occupy in the McKinley cabinet, declared in the senate, Wednesay, that private enterprise would never execute the project and that the work should be undertaken by the government. He paid a tribute to England and said that the idea of British opposition to the canal scheme is bugaboo.

## Another Novel Method of Propulsion.

According to the improvement represented in the accompanying illustration, lengthwise channels are formed, by means of housings, at each side of the keel of a vessel, and in each of these channels is located a shaft carrying a number of screws, the shafts being geared with vertical shafts operated by one or more motors of any preferred description within the vessel. The improvement has been patented in the United




States and several foreign countries by Conrad Odinet, of No. 257 West 116th street, New York City. It is designed that, with this construction, a material increase of speed may be obtained without employing much more power than at present, and that the vessel will be able to turn as upon a pivot ,the propellers acting substantially as a rudder. The propellers, placed so low down, will be constantly in the water, and never liable to race, while they will also thoroughly ballast the vessel and add stability to the hull. Hinged to fold close to the keel, at the forward ends of the channels, are gates by which the channels may be closed, to check or stop the forward movement of the vessel, the gates being moved by conveniently arranged levers within the vessel. In addition to the bottom propellers the ordinary stern propeller may be employed if desired. This improvement is designed for use with but such slight changes in the present method of hull construction as may be necessary in providing for the longitudinal housing on the bottom of the hull.—Scientific American.

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The Wm. Chisholm-Oceanica collision case, resulting from the most disastrous accident that occurred on the lakes last season, is being heard before United States District Judge Swan in Detroit. Mr. Harvey D. Goulder is representing the owners of the Chisholm and Moores & Goff are representing the Oceanica.

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Thoughts at sea: The first day called up gravest fears that made me nervous hearted; the next day called up memories of friends from whom I'd parted; the third day called up thoughts of land where one is safely carted; the fourth day called up everything I'd eaten since I started.—L. A. W. Bulletin.

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**When Going to**

Pittsburgh take Pennsylvania No. 10, "The Flyer." Leaves Union station 8 a. m. daily, Euclid avenue 8:10 a. m.; arrives Pittsburgh 11:30 a. m. Solid vestibuled train, Pullman Buffet Parlor car attached to train. Apl 15

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U. S. MARSHAL'S SALE NORTHERN District of Ohio. By virtue of an order of sale issued out of the United States District Court for the Northern District of Ohio, on the 23rd day of January, 1897, notice is hereby given that I will sell by public auction, for cash, on Saturday, the 30th day of January, 1897 at 2 o'clock P. M. at west door of Government building at Cleveland, Ohio, the steam tug Jose, her engines, boilers, machinery, boats, tackle, apparel, appurtenances, and furniture, as she now lies, Cuyahoga river, west of Valley R. R. bridge.

M. A. SMALLEY,
United States Marshal.

# THE PRICE TO BE PAID FOR CARRYING ORE

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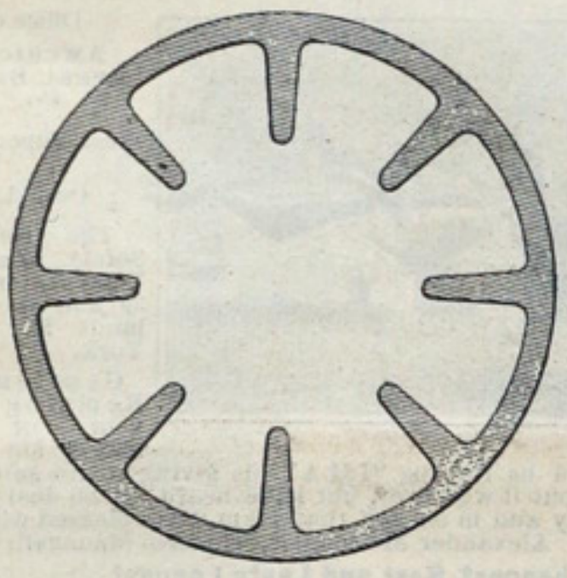

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Managers of the Trans-Atlantic lines are watching the performance of the steamer on the right, because she burns only 1.22 lbs. coal per horse power per hour. Her boilers are fitted with the tubes shown on the left.

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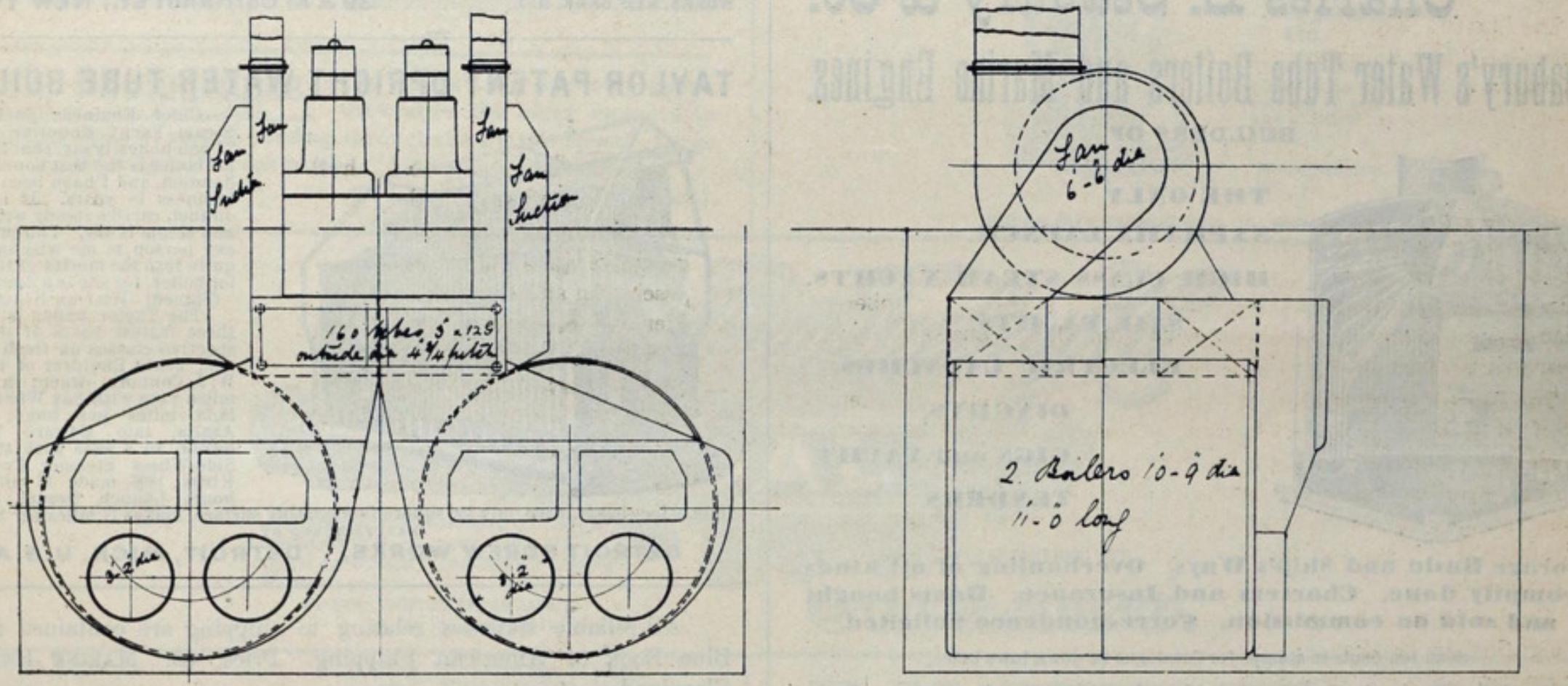


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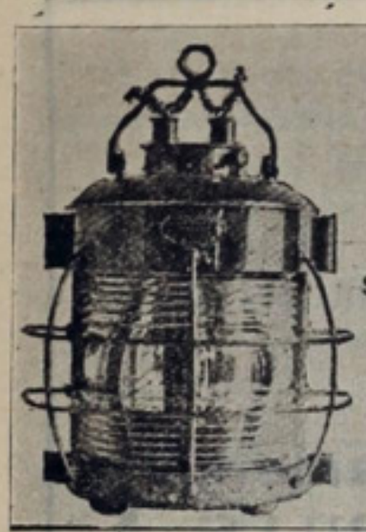

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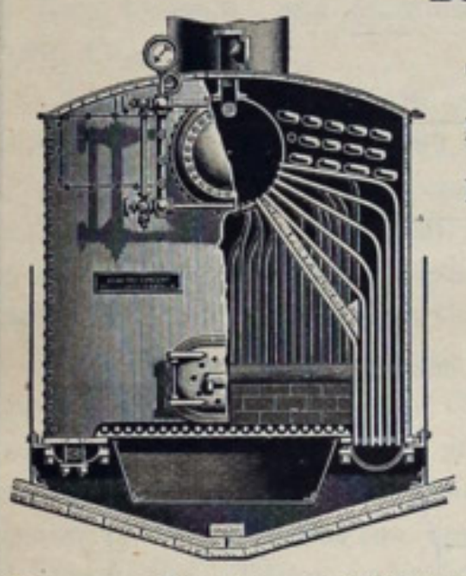

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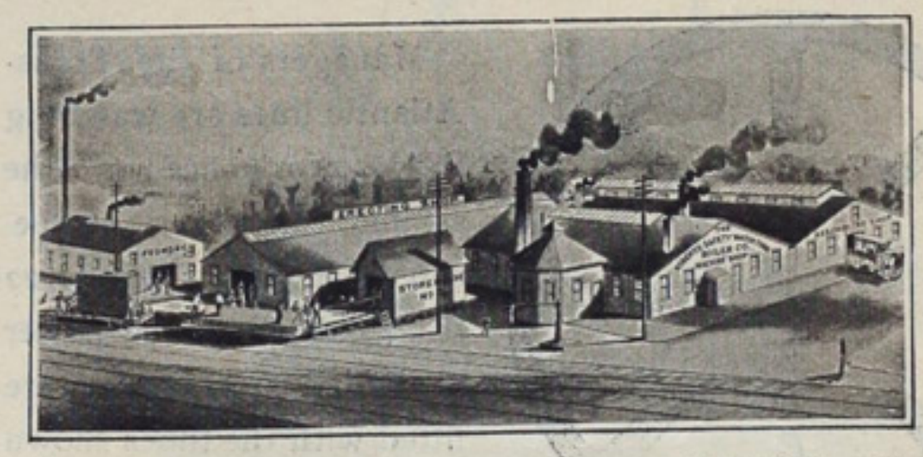

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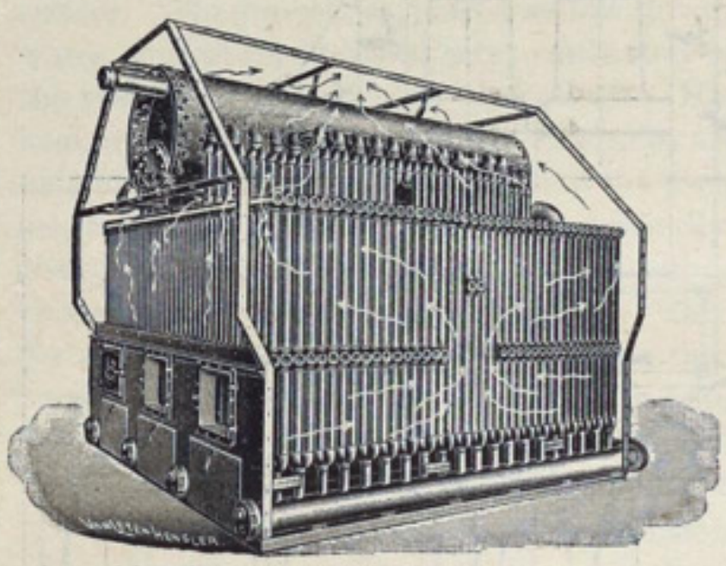

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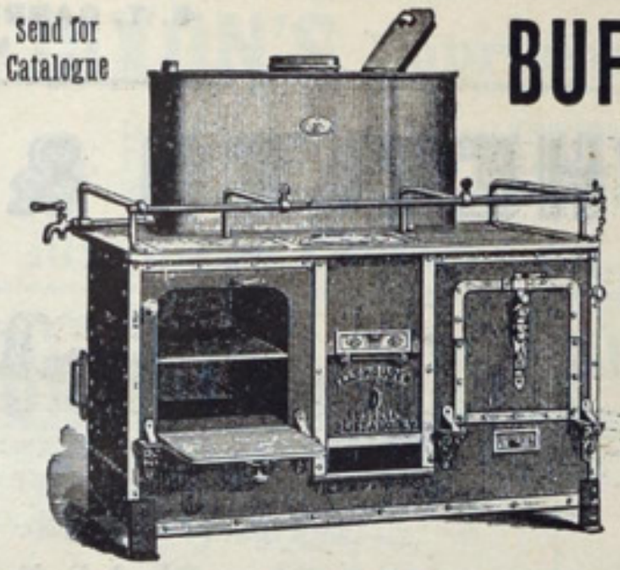

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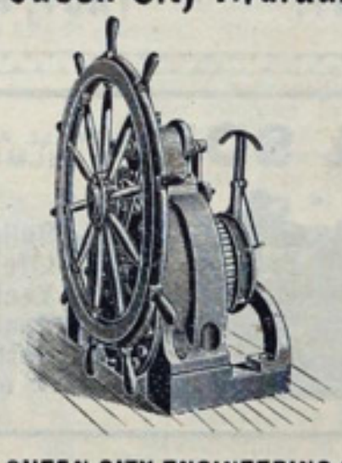

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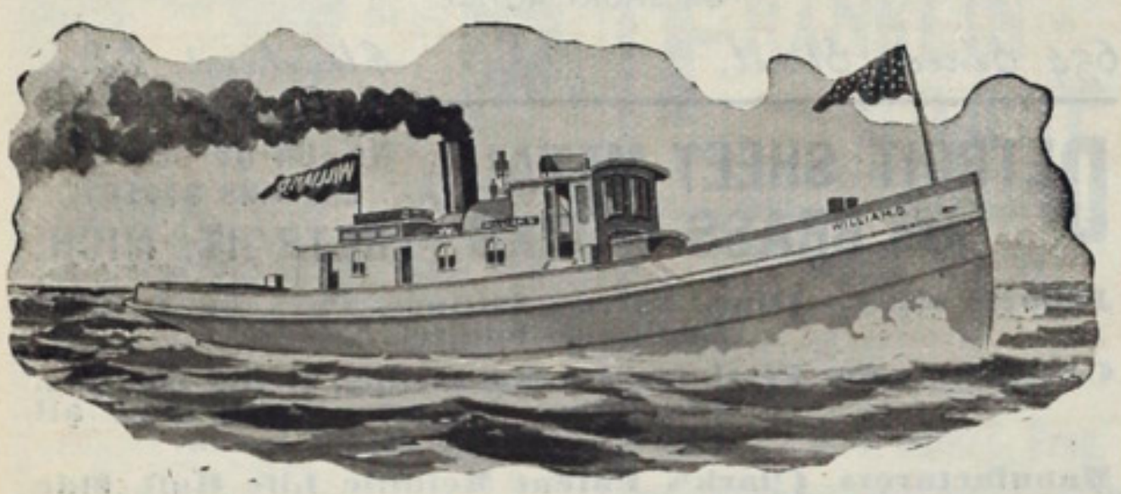

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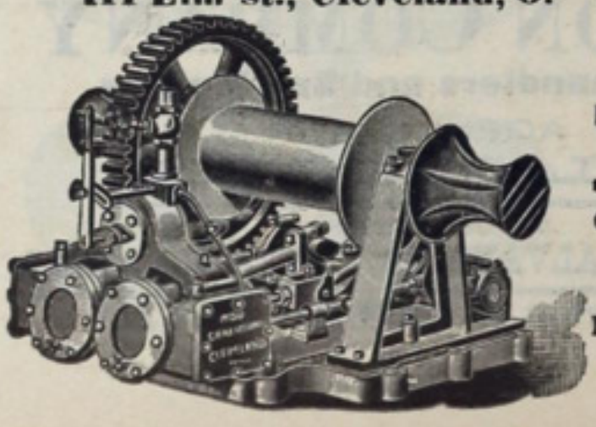

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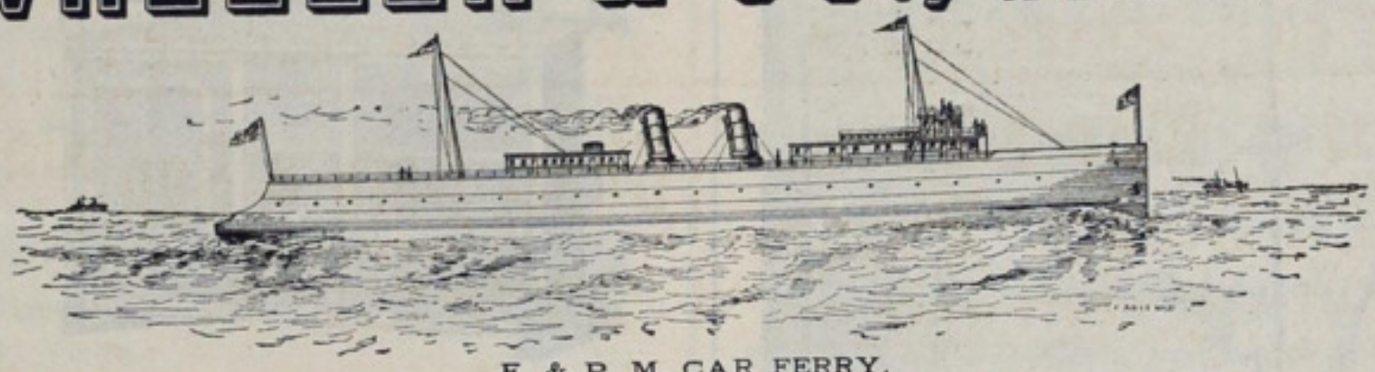

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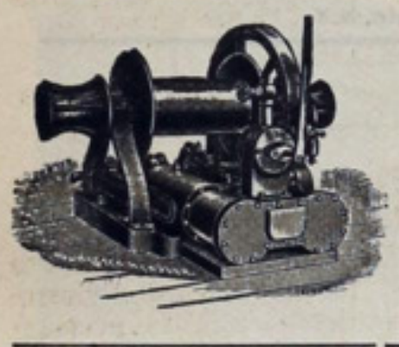

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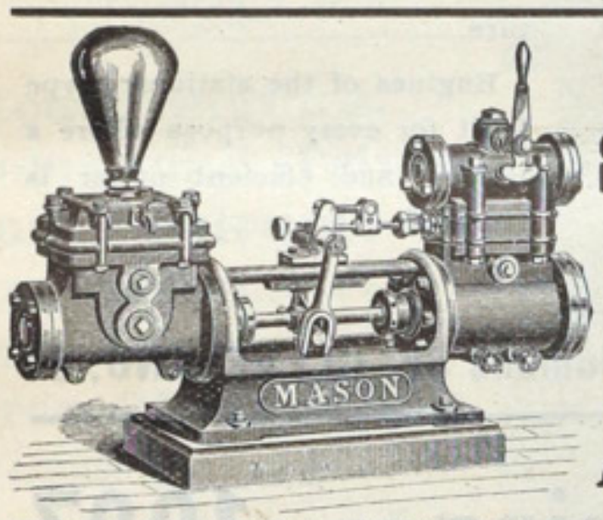


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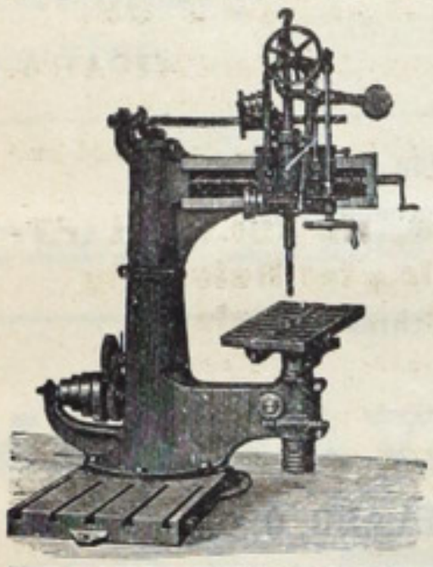

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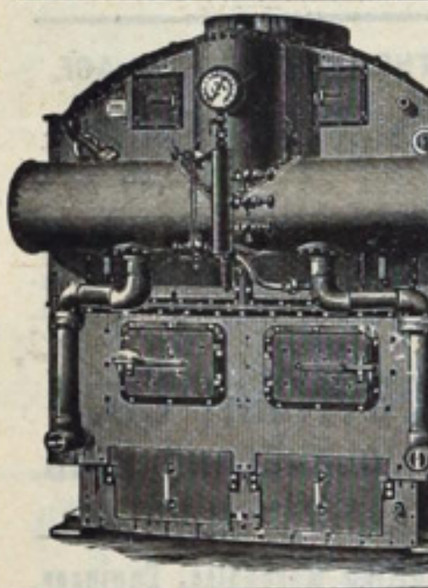

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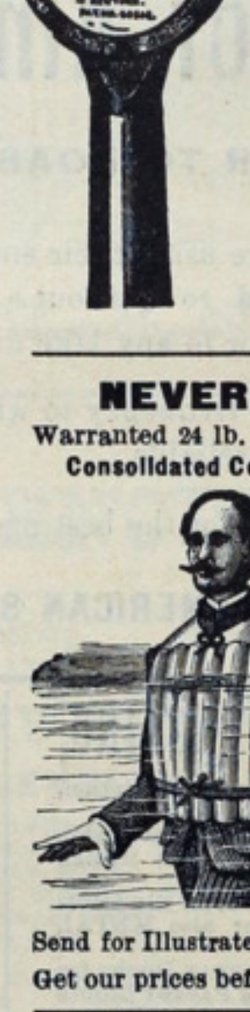

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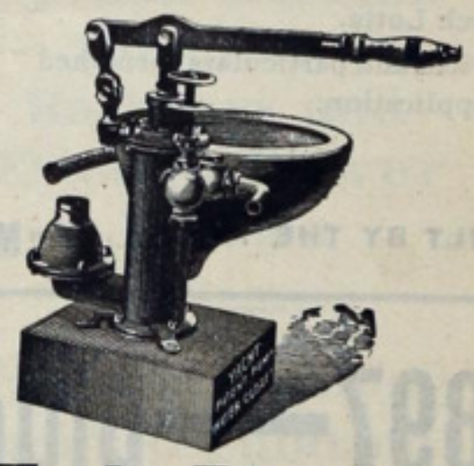

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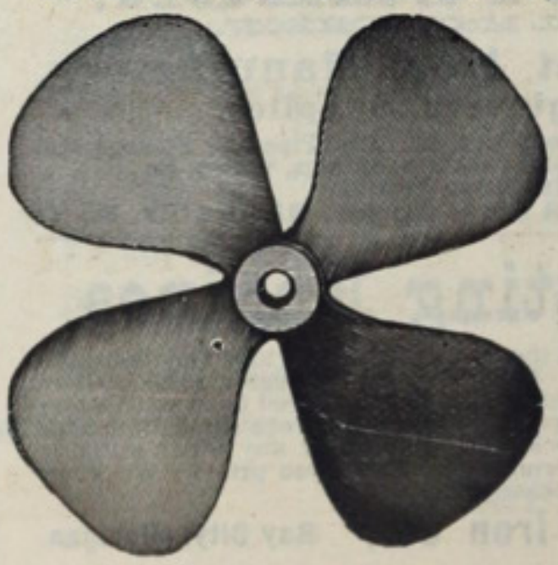

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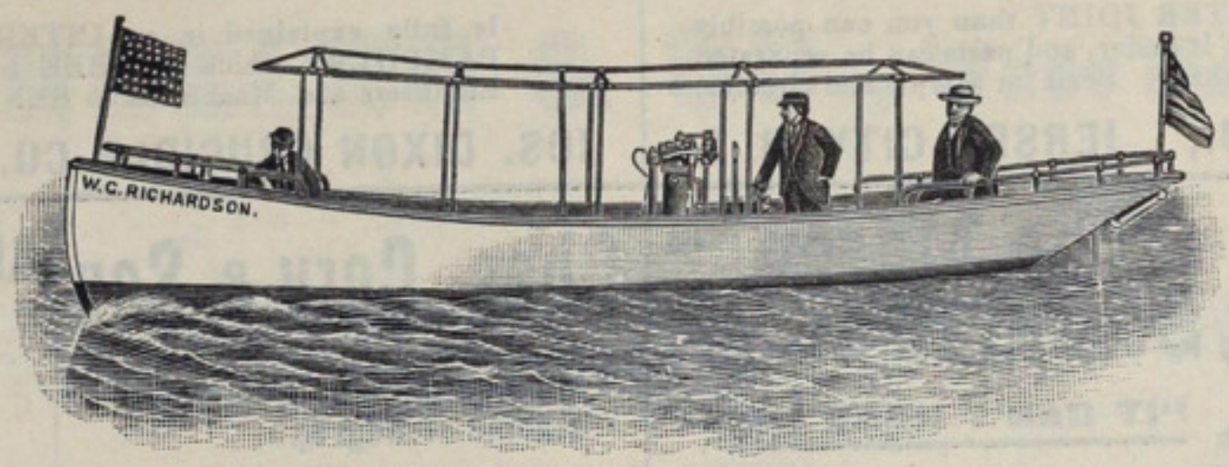


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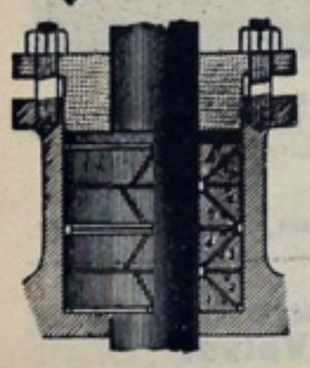

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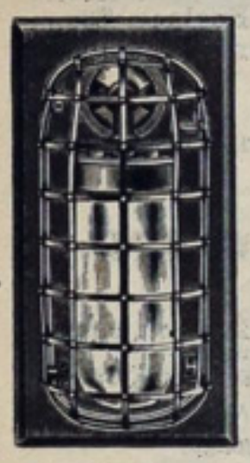

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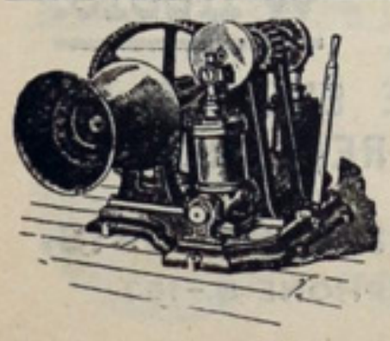

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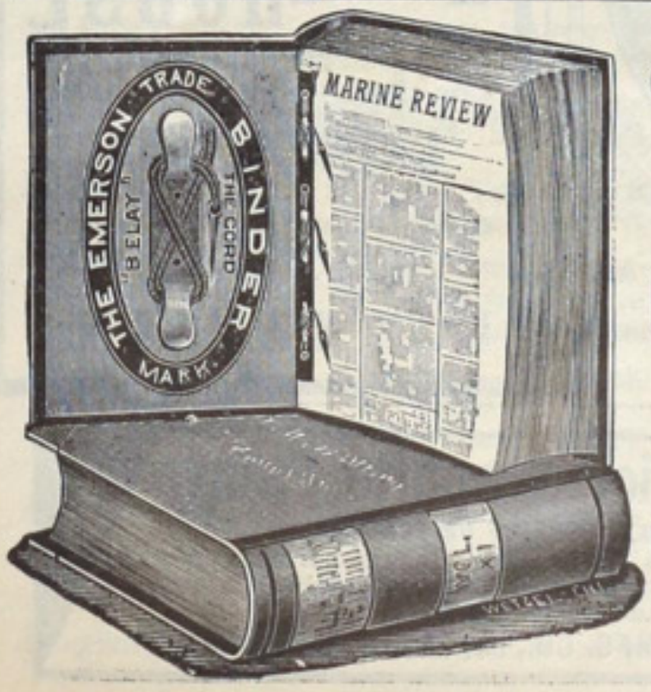


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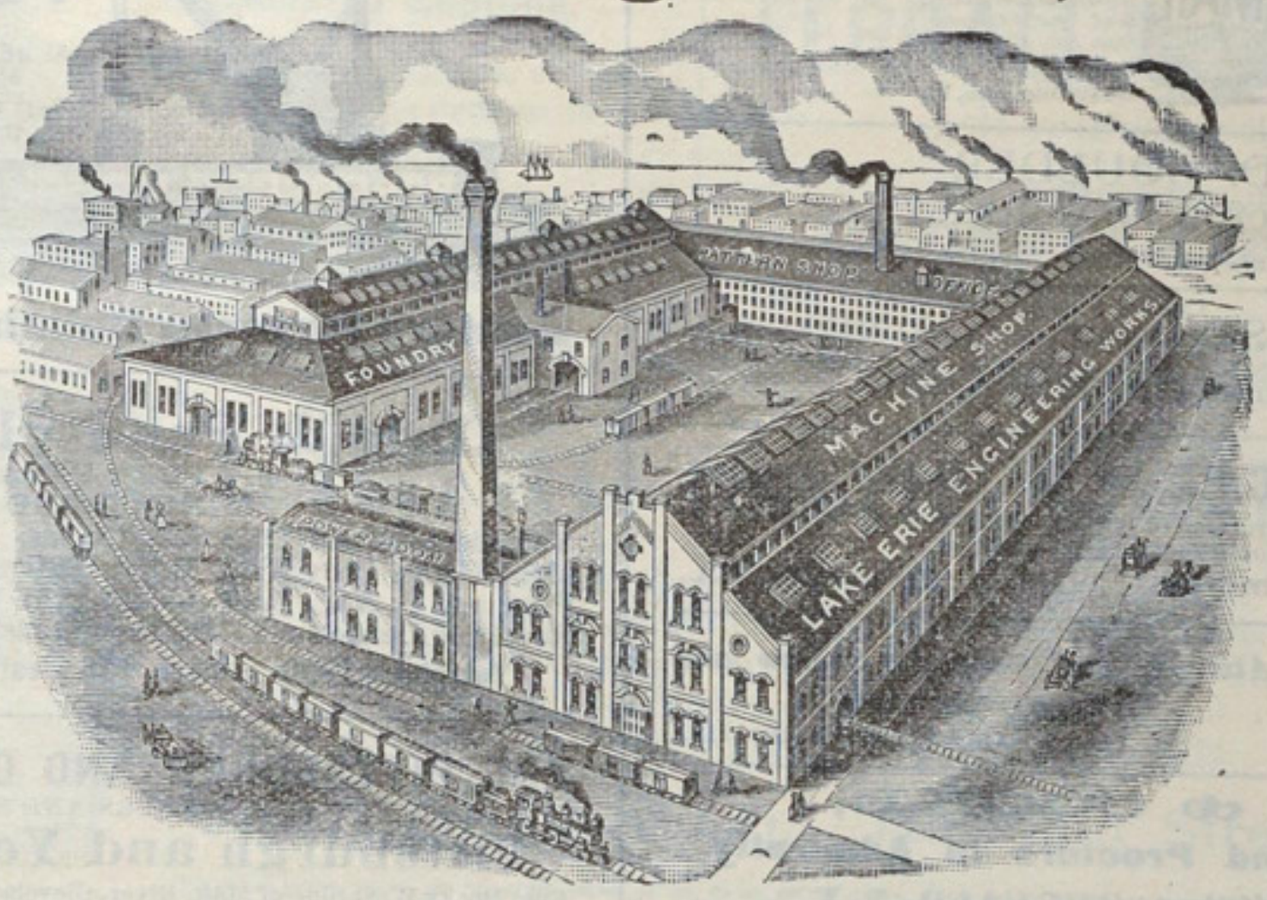


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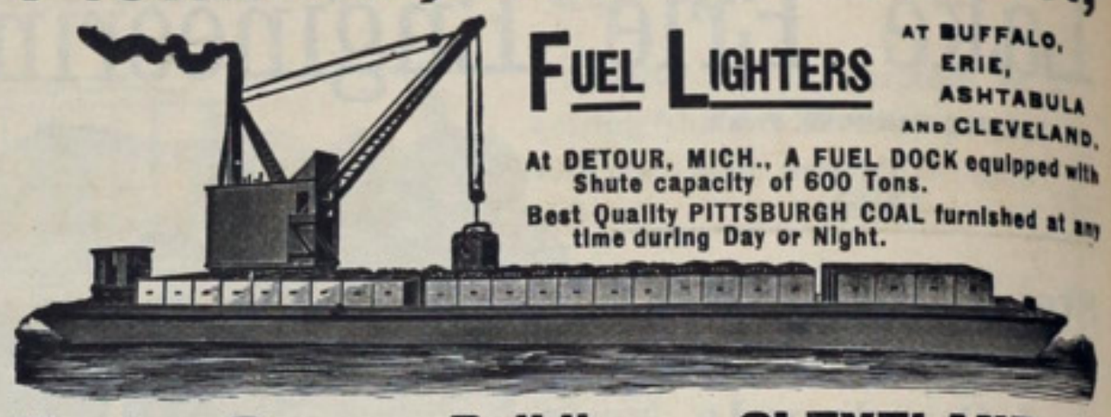

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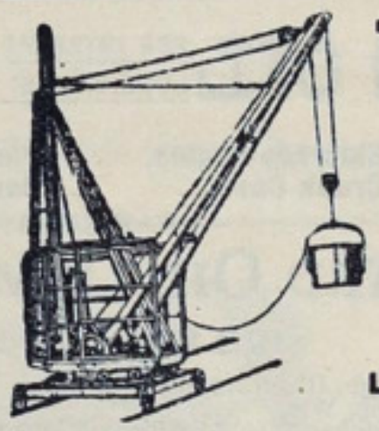

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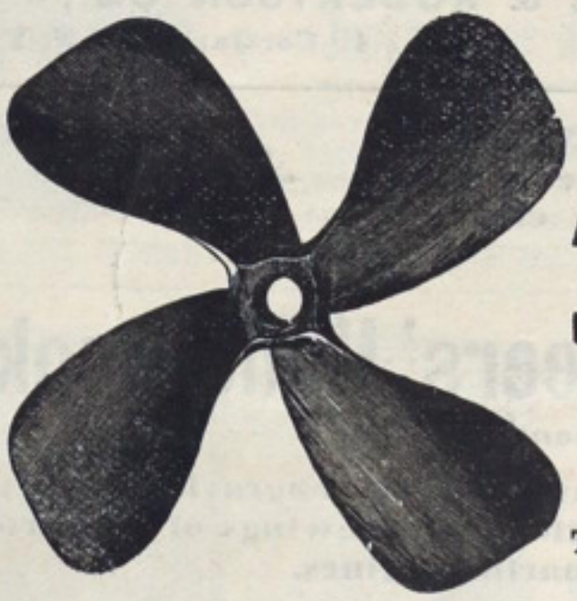

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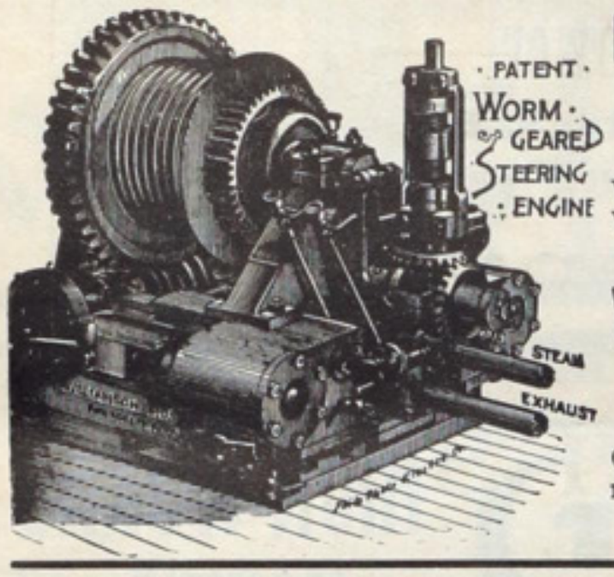


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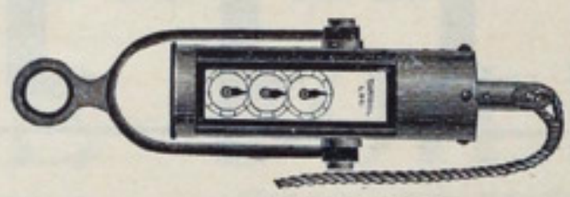

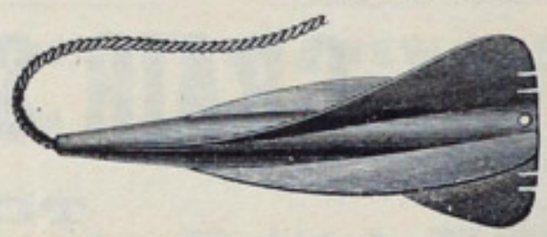

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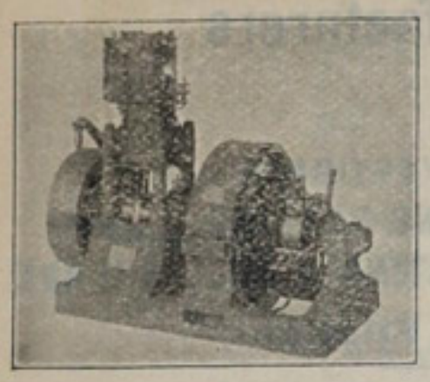

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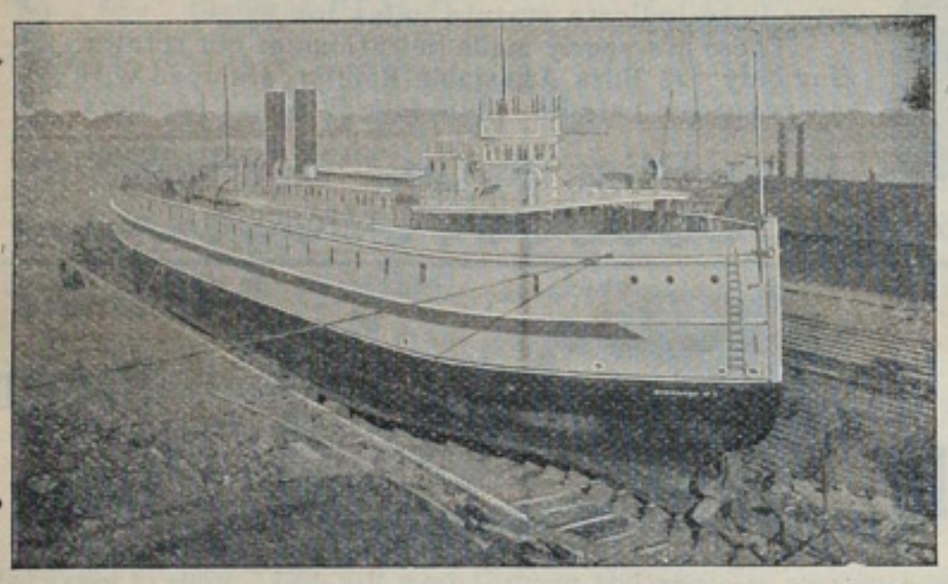

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# The United States Standard Register of Shipping.

Providing the only Standard Classification based on Construction Rules Designed for Lake Vessels.
Classed Vessels Receive the Lowest Rates of Insurance.

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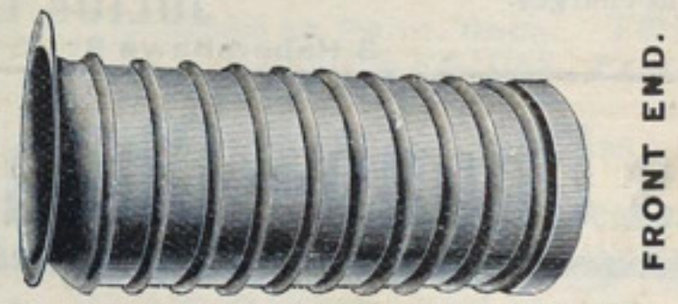
.....Surveyor for District comprising Lakes Superior, Michigan and Huron and Lake Erie, as far East as, and including Cleveland, O.

**EDWARD GASKIN,** Potter Building, Main Street, Buffalo, N. Y., Surveyor for District comprising Lake Ontario and Lake Erie, as far West as, but not including Cleveland, O.

Application for survey of vessels and subscriptions to Register Book will be received by the surveyors or at the office of

**The United States Standard Steamship Owners', Builders' & Underwriters' Ass'n, Ltd**
Post Building, 16 and 18 Exchange Place, . NEW YORK.

**PURVES' RIBBED STEEL BOILER FURNACE FLUE.**

BACK END.  FRONT END.

With this style of Furnace Flue, the rivets at the "back end" are out of the line of fire, and all that has to be done to remove it is to cut out the rivets at the ends and slip it through the front; and to replace it, simply to slip it back in its place and rivet up the ends again without disturbing any other part of the boiler. No smith work is required to fit it in a boiler or to refit it when replaced. It is ready for use as it comes from the manufacturers. This style of Flue has been in use six years without a single complaint.

Over 16,000 of Purves' Ribbed Steel Furnace Flues in successful use in Marine Boilers.

**ELLIS & EAVES SYSTEM OF INDUCED OR SUCTION DRAFT.**

**CHARLES W. WHITNEY,**
Sole Agent for the United States and Canada,
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**DREDGES, TUGS and SCOWS.**

Two Dredges and six Dump Scows, one Flat Scow, one Derrick Scow and four Tugs—

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| One | with | 15 by 17 | engine, | allowed | 110 | lbs. | steam. |
| " | " | 17 by 16 | " | " | 110 | " | " |
| " | " | 20 by 22 | " | " | 125 | " | " |
| " | " | 20 by 24 | " | " | 110 | " | " |

Inquiries from parties who mean business cheerfully answered.

**JAMES ROONEY, 1118 Collingwood Av., Toledo, O.**

**WM. WILFORD'S**
**Matchless Water-Proof Canvas.**

The best in the market for Hatch Covers, is stronger lighter and more durable than any Water-Proof Goods yet produced. It is made of a twisted thread of pure flax which renders it very strong. It will not crack like Cotton Goods or take fire as easily, which is a great advantage, if soft coal is used.

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Room 617, 27 & 29 WILLIAM ST., NEW YORK.

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MARINE ENGINES,
PROPELLER WHEELS,
DECK HOISTERS,
MARINE REPAIRS.

320 ATWATER STREET,
DETROIT, MICH.

## THE BABCOCK & WILCOX CO.

# FORGED STEEL WATER-TUBE MARINE BOILER,

29 CORTLANDT ST., NEW YORK.

Boilers sold to United States Merchant Marine and Yachts - - - - - - 16,500 H. P.
Boilers sold to United States Navy - - - - - - - - - - - 7,500 "
**The onlv Water-tube Boiler in the British Merchant Marine 15,500 "**

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SHIP PLATES, BOILER PLATES,
ANGLES, BEAMS, CHANNELS, BARS,
BOAT SPIKES, CLINCH RINGS,

Sales Agents:

## THE CAMBRIA IRON CO.

**Mfrs. of Open Hearth and Bessemer Steel.**

De Grauw, Aymar & Co.,
34-35 South Street,
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Sole Selling Agents in the United States for

TYZACK'S
STOCKLESS ANCHORS

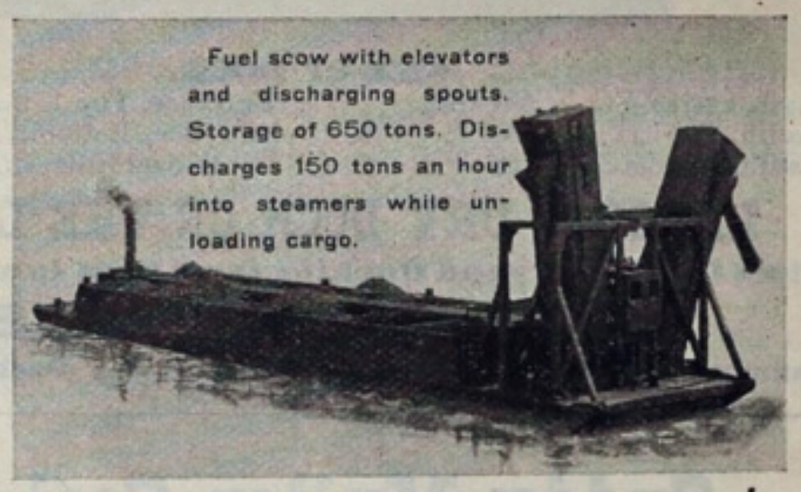
Over 100 of these Anchors on Lake Vessels.

U. S. ENGINEER OFFICE, DULUTH, Minn., Dec. 16, 1896. Sealed proposals for dredging about 21,000,000 cubic yards in the harbor of Duluth, Minn., and Superior, Wis., will be received here until noon, Feb. 15, 1897, and then publicly opened. Information furnished on application. CLINTON B. SEARS, Major, Engrs. Feb. 12.

## Steamboat Fuel at Ashtabula.

Large Supplies of Best Quality.

Lighter Carrying Different Grades at all Times.



Fuel scow with elevators and discharging spouts. Storage of 650 tons. Discharges 150 tons an hour into steamers while unloading cargo.

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Single and Duplex Pumps for Boiler Feed, Fire or Bilge Service—Vertical and Horizontal.
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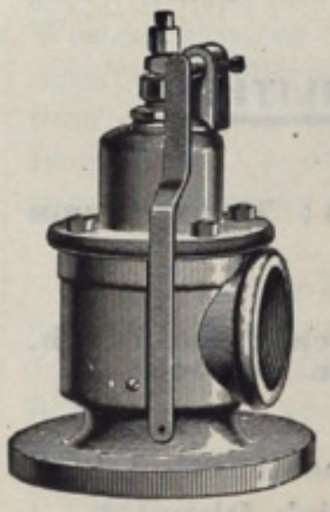

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Sole Proprietors and Manufacturers of

Crosby Pop Safety Valves and Water Relief Valves Crosby Improved Steam Gages, Single Bell Chime Whistles Patent Gage Testers. Victory Lubricators, and other specialties.

The Crosby Steam Engine Indicator, when required, is furnished with Sargent's Electrical Attachment, by which any number of diagrams can be taken simultaneously.

BRANDEN PUMP VALVES, rubber with wire-coil insertion.

Manufacturers of all kinds of Pressure and Vacuum Gages, Water Gages, Gage Cocks, Radiator Cocks, and other Engine and Boiler Fittings and Supplies.

Branch Offices at New York, Chicago and London,
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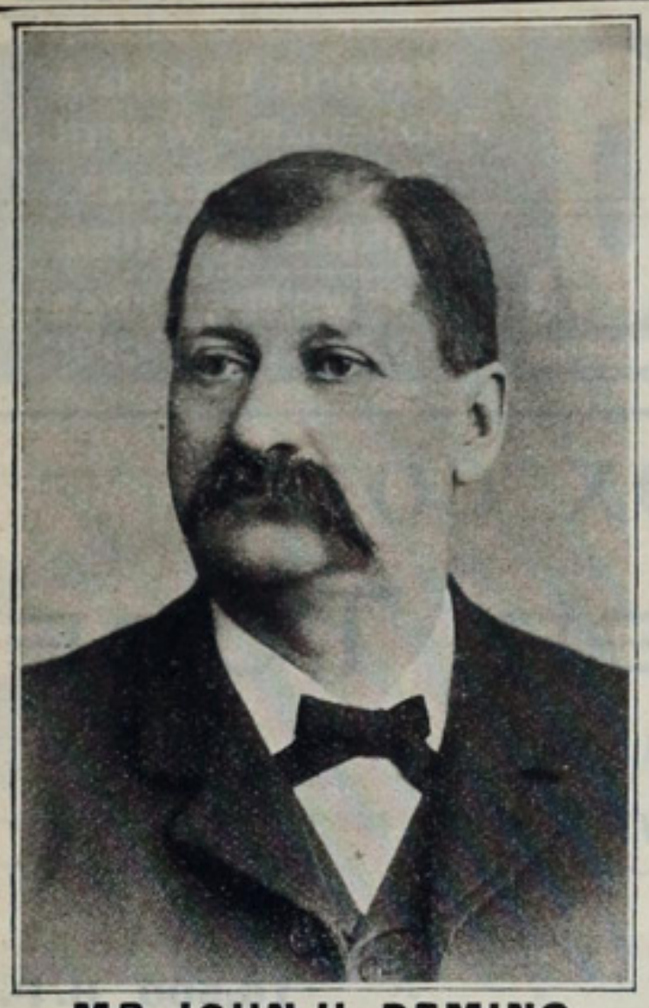

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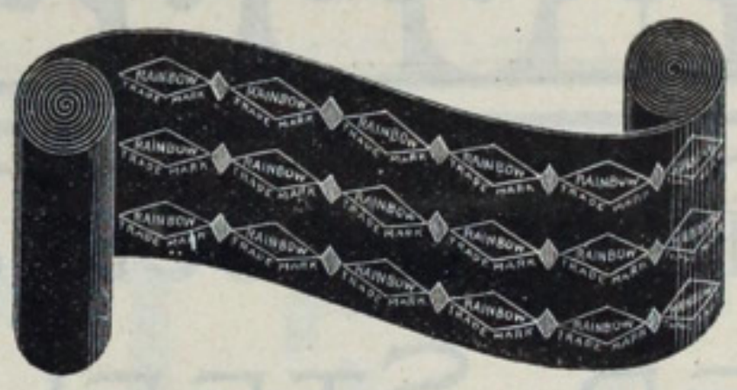
The inventor of and the only man in the world who can make

# RAINBOW PACKINGS.

Thousands of Imitators. No Equal.

Will Hold Highest Pressure.




Don't have to use wire and cloth to hold.

RAINBOW.

Can't blow it out.

## LOOK OUT FOR IMPOSTERS.

Commencing Dec. 1st, we use Three Rows of DIAMONDS IN BLACK extending throughout the entire length of each and every roll.

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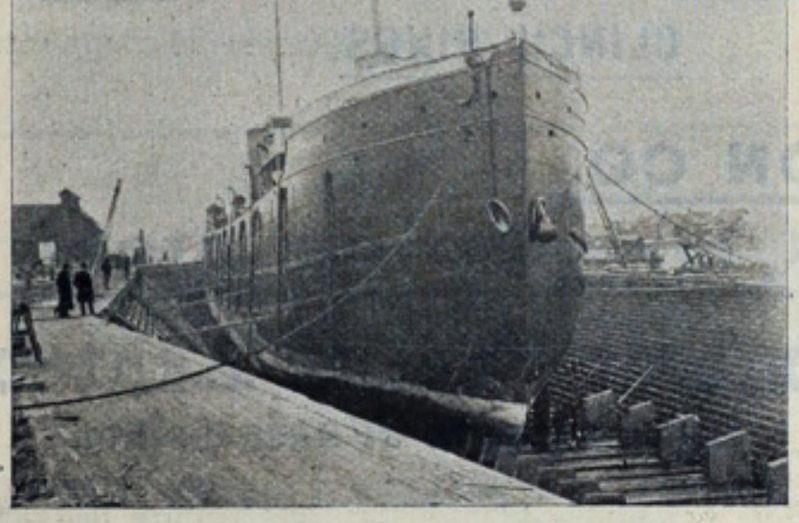
## STEEL and METAL SHIPS

Of all classss built on the Shortest Possible Notice at our yards at

***West Superior, Wis., and also at Everett, Wash.***

**Plates & Material Always on hand to Repair all kinds of Metal Ships in Shortest Time.**



**Best Quality of Oak instock for Repairing Wooden Vessels of all Classes.**

**SIZE OF DOCK.**

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| Length, extreme | 537 feet. | Entrance, Top | 55 feet 9 in |
| Breadth, Top | 90 " 4 in. | Entrance, Bottom | 50 " |
| Breadth, Bottom | 52 " | Depth over Sills | 18 " |

## LARGEST DRY DOCK ON THE LAKES.

**Prices for Repairs and Docking same as at lower lake ports**

## SUPERIOR, WIS.

**A number of Propellor Wheels in stock at Dry Dock.**

# Cuddy-Mullen Coal Co.

# Lake Shippers of Steam Coal.

**FUELING DEPARTMENT FACILITIES:**

**CLEVELAND HARBOR—**
Car Dumper; Eight Pockets; Three Steam Derricks; Lighter.

**DETROIT RIVER BRANCH—**
Amherstburg, Steam Derricks; Sandwich, Ten Pockets and Two Steam Derricks.

**SAULT RIVER BRANCH—**
Pocket Dock now under construction.

Good Coal; Courteous Attention; Quick Dispatch.

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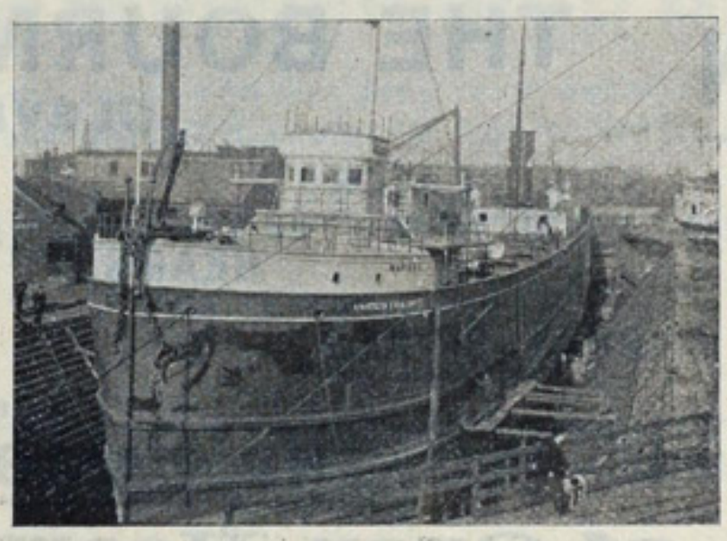
# The Cleveland Dry Dock Co.



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Telephone 1616.
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**REPAIRING A SPECIALTY.**

Dimensions of Dock:
Lth. over all, 360 ft.
Lth. on blocks, 340 ft.
Width of gate, 50 ft.
Depth over sill, 20 ft.

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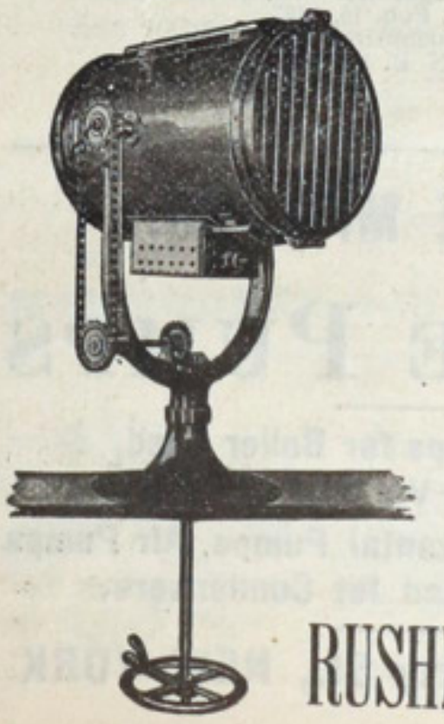
# CLEVELAND CITY FORGE & IRON CO.

CLEVELAND, O.

IRON OR STEEL FORGINGS FINISHED COMPLETE, ROUGH MACHINED OR SMOOTH FORGED ONLY, OF ANY WEIGHT.
COUPLING LINKS AND PINS. PRESSED WROUGHT IRON TURNBUCKLES. CAR IRON SPECIALTIES.



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**The only successful commerial light.**

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**Have Replaced All Other Makes.**

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